



ENG [www.phytron.eu/MCDplus](http://www.phytron.eu/MCDplus)

## MCD<sup>+</sup>

### Compact stepper motor power stage with ServiceBus

The MCD<sup>+</sup> is a bipolar power stage for driving 2 phase stepper motors. The operation parameters - phase currents, step resolution and preferential motor direction - are programmable by rotary switches or in the ServiceBus mode.

The MCD<sup>+</sup> is designed for power supplies from 24 to 70 V<sub>DC</sub>.

The control pulse, motor direction, boost, activation and reset inputs are compatible with push-pull or open collector signals. The control inputs are electrically insulated from the supply and motor voltage.

A special feature of the MCD<sup>+</sup> offers 3 terminals for each signal input. Thus separate input terminals for 5 V and 24 V are available.

#### Application

The MCD<sup>+</sup> is suitable for up to 450 Watts of shaft power that is ideal for controlling spindle and toothed belt drive systems for mechanical handling or assembly applications. The high step resolution makes the MCD<sup>+</sup> the best solution for applications that have especially high demands on precision, smoothness and durability.

#### In Focus



El. Isolated



ServiceBus

- Stepper motor power stage for bipolar control of 2 phase stepper motors
- Up to 9 A<sub>PEAK</sub> at 24 tp 70 V<sub>DC</sub>
- Up to 1/512 step resolution
- Online power stage parameterisation and diagnostic via ServiceBus
- Inputs and outputs are electrically separated
- Optional accessories: USB-RS 485 converter
- Free available parameterisation and diagnosis tool ServiceBus-Comm®

#### Highlights

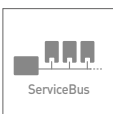
##### Rotary switch mode

The run and the stop current can be changed between two ranges by the current range switch. These phase currents can be set in 15 increments up to 9 A<sub>PEAK</sub>. In this operating mode the step resolution can be adjusted from full step up to 1/20 step.



##### Compact design

The complete device plus wall mounting brackets measures only 127 x 37 x 110 mm.



##### ServiceBus instructions

Online parameterisation even during operation via USB, RS485...

##### ServiceBus mode

All settings are entered at the PC, which is easy to do with the free phytron software ServiceBus-Comm® for Windows®.

In the ServiceBus mode the phase currents can be programmed in 100 mA increments, the step resolution from full step to 1/512 step and the current delay time from 1 to 1000 ms.



## Control

## Specification

## Mechanical

Dimensions (W x H x D)	38 x 127 x 110 mm
Weight	560 g
Mounting	DIN rail and wall, vertically inside a cabinet is recommended

## Features

Stepper motors	Suitable for the bipolar control of 2 phase stepper motors with 4, (6) or 8 lead wiring
Supply voltage	24 to 70 V <sub>DC</sub>
Phase currents	Up to 9 A <sub>PEAK</sub> <b>Rotary switch mode:</b> Current range selectable by rotary switch: Rotary switch position: I: 0.4 to 3 A <sub>PEAK</sub> , II: 1.1 to 9 A <sub>PEAK</sub> <b>ServiceBus mode:</b> Programmable values: 0.1 to 9 A <sub>PEAK</sub>
Step resolution	<b>Rotary switch mode:</b> 1/1, 1/2, 1/4, 1/8, 1/10, 1/20 of a full step <b>ServiceBus mode:</b> 1/1, 1/2, 1/4, 1/8, 1/10, 1/16, 1/20, 1/32, 1/64, 1/128, 1/256, 1/512 of a full step
Cable length	Motor : shielded: 50 m max. Signal: shielded: 100 m max
Operating modes	Rotary switch mode and ServiceBus mode (optional)
Diagnosable errors	Under-/overvoltage (< 20 V <sub>DC</sub> or > 85 V <sub>DC</sub> ), overtemperature (T > 85 °C), overcurrent, short circuit

## Interfaces

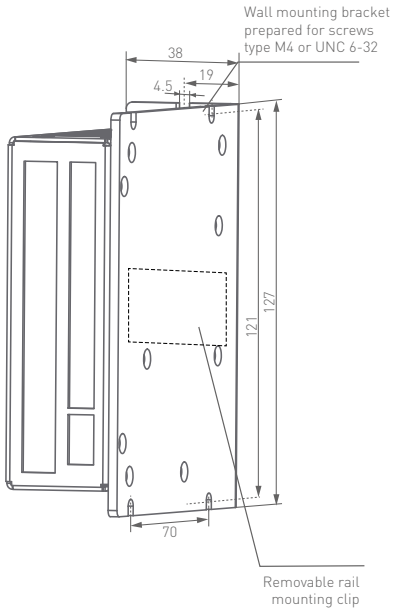
Analogue outputs	A, B, C, D for a 2 phase stepper motor
Digital outputs	Optically insulated from the motor voltage, type Open-Collector $I_{max} = 20 \text{ mA}$ , $U_{max} = 30 \text{ V}$ , $P_{total} = 300 \text{ mW}$ , $U_{CE sat}$ at 20 mA < 1 V Error: short circuit, overvoltage, overtemperature, undervoltage, overcurrent
Connection	ServiceBus: RS 485, USB-RS 485 converter (optional accessories)
Inputs	Optically insulated from the motor voltage; control via push-pull driver or Open Collector; input level 5 V or 24 V: Control pulses, Motor direction, Boost, Activation, Reset

## Communication and Programming

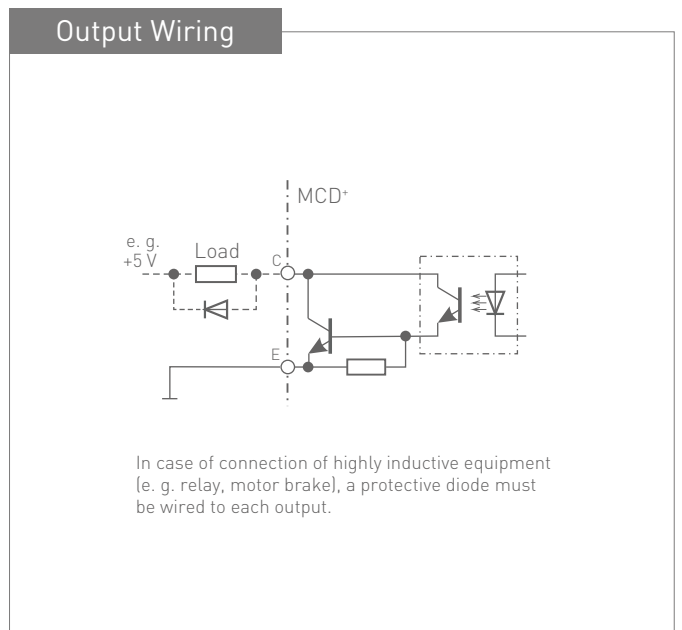
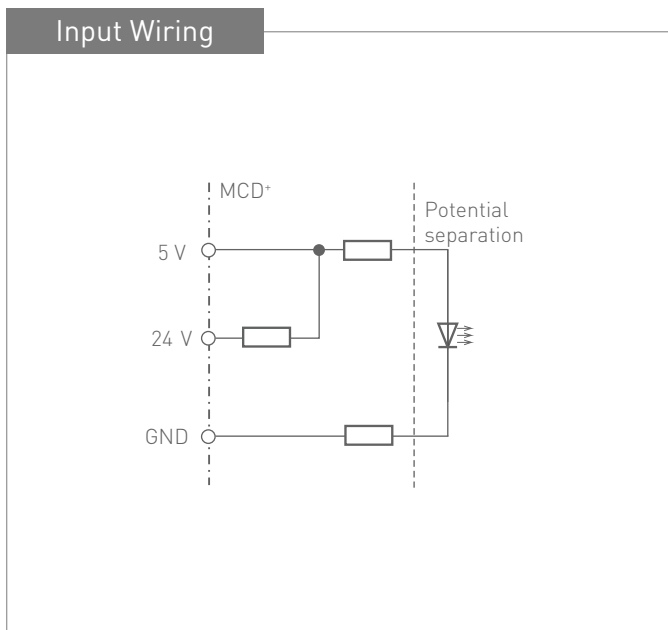
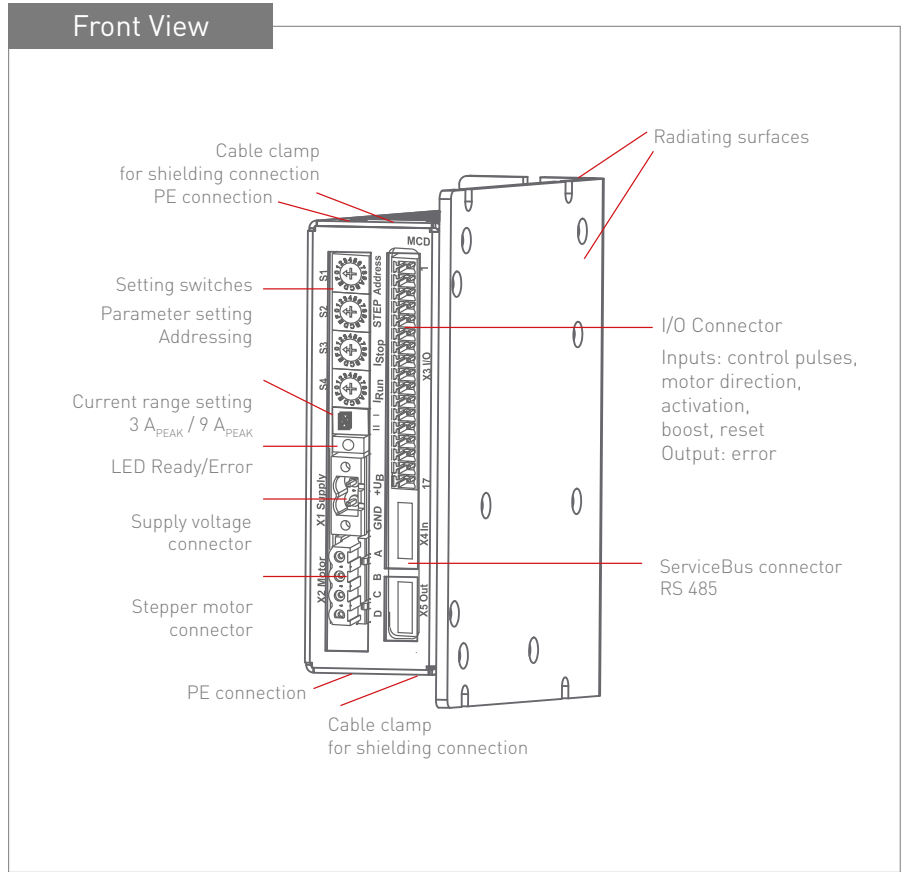
Rotary switch mode	Setting of run and stop current, step resolution and current shape
DIP switches	Setting of overdrive and boost function, activation and preferential motor direction
Diagnostic by LED	Basic position, overload, supply failure, overtemperature

## Operating Conditions

Temperature	Operation: +4 to +40 °C, storage: -25 to +55 °C, transport: -25 to +85 °C
Degree of pollution	Level 2
Relative humidity	5 – 85 % . class 3K3 non condensing
Protection class	IP 20
EMC immunity / EMC emission	Acc. to EN 61000-3-2: EMC Acc. to EN 61000-6-1, 2, 3, 4: EMC and RFI immunity
Approval	CE



Dimensions in mm



## Control

## USB-RS485-converter



# 10012292

- 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)

Extent of Supply (included):

- connector cable: Type USB A-B, 200 cm and Type USB A-A, 100 cm (connection RS485 to MCD+)
- Driver CD

## Ordering Code

The variable elements of the product are displayed in colour.

	Type	Peak current / Current regulation	Motor voltage	Step resolution	Mounting
Ordering code	MCD+	93	- 70	MINI	- W
<b>Options</b>					
Mounting	W H			Wall mounting With attached DIN rail mounting clip	

Windows® is a trade mark of Microsoft.  
ServiceBus-Comm® is a trade mark of Phytron GmbH.

## Extent of Supply

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

## Optional Accessories

- Rail mounting assembly set with rail mounting clip attached to the housing
- ServiceBus cable
- USB cable
- USB-RS 485 converter
- Power supply SPH 240 or 500 for wall- or rail mounting

Any questions? Please contact us.

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