

ENG

[www.phytron.eu/MR8plus](http://www.phytron.eu/MR8plus)

## MR8<sup>+</sup>

### Minirack for 1 to 8 power stages and ServiceBus module

The MR8<sup>+</sup> is a minirack for up to 8 stepper motor power stages and a power and ServiceBus module (PSB).

The power supply for max. eight power stages (24 to 48 V<sub>DC</sub> / 3.5 A per power stage), and the ServiceBus interface are provided by the PSB module via a backplane. The plug-in position of the power stages determines its address. So the operating parameters, programmed via ServiceBus, are definitely assigned to a certain power stage.

The integrated PSB module allows the cascading of up to 4 MR8<sup>+</sup> (address switch 0-3). Thus, up to 32 axes can be configured centrally.

The A 32-48 power stage is for bipolar control of 2 phase stepper motors up to 3.5 A<sub>PEAK</sub>. The

high step resolution up to 1/512 step guarantees very high smoothness with a positioning accuracy of 1/20 step. The 5 V push-pull inputs (Control pulse, Motor direction, Boost and Activation) are electrically isolated from the supply voltage. The parameterisation is done via ServiceBus or by setting switches (step resolution, current).

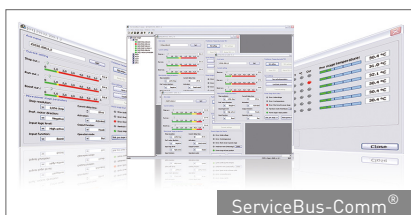
#### Application

The compact minirack is the perfect choice for up to 50 Watts shaft power for multi-axes application in science, optics, micro handling or in semiconductor manufacturing. Furthermore, the MR8<sup>+</sup> is the best supplement for PC controllers, that can output Control pulses, Motor direction, Boost and Activation for several axes on an incremental interface.

#### Highlights

##### ServiceBus

The ServiceBus is designed for communication with the power stages via RS 485/4-wire or USB. All settings can be entered at the PC, using the free ServiceBus-Comm<sup>®</sup> phytron software. So each axis can be parameterised and controlled by the ServiceBus.

ServiceBus-Comm<sup>®</sup>

##### More programming possibilities

Alternatively, readable ASCII-string instructions can be edited by individual software - e.g. with LabVIEW<sup>®</sup>, HyperTerminal or in C language.

So it is possible to transmit parameters to each power stage without any problem during initialising or to change components and to evaluate status information.

The MR8<sup>+</sup> minirack can also be parameterised at each power stage: run current, step resolution and preferential motor direction are manually adjustable by setting switches.

#### In Focus



ServiceBus



El. Isolated

- up to 8 plug-in stepper motor power stages
  - Bipolar control of 2 phase stepper motors
  - Motor current up to 3.5 A<sub>PEAK</sub>
  - Step resolution from 1/1 to 1/512 steps
  - Push-pull inputs: Control pulses, Motor direction, Boost, Activation
  - Electronical monitoring: overtemperature, short circuit, undervoltage
  - Programming the operating parameters by setting switches or by PC via ServiceBus
- Power- and ServiceBus module (PSB):
  - 24 to 48 V<sub>DC</sub> supply voltage connector
  - ServiceBus interface for communication with the power stages
  - ServiceBus-Comm<sup>®</sup> PC software for Windows<sup>®</sup> included in delivery
- Minirack housing for wall mounting
  - 270 x 120 x 155 mm (W x H x D)
  - Front side locking bar
  - EMC clamps to connect the cable shielding

## Control

## Specification

## Mechanical

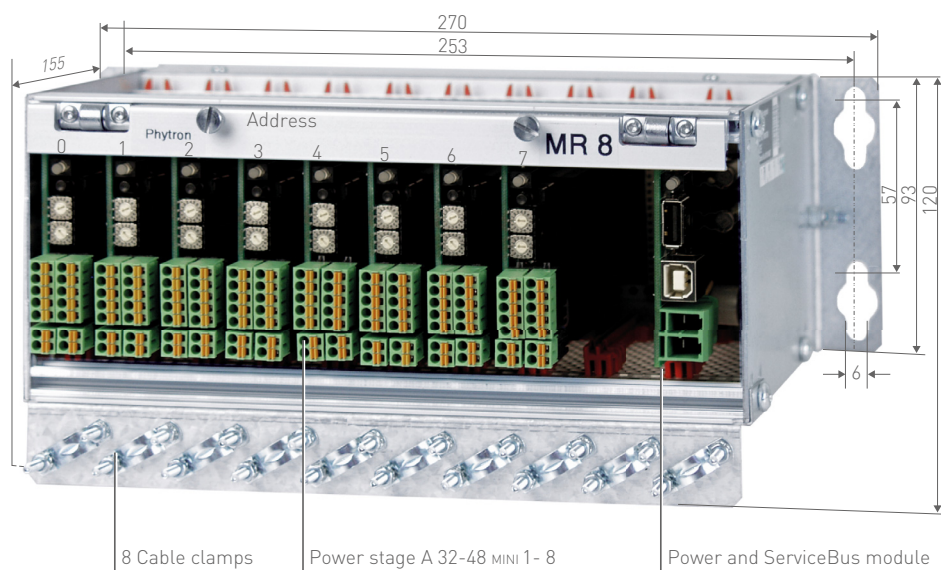
Dimensions (W x H x D)	270 x 120 x 155 mm
Weight	Approx. 2,300 g (in completion)
Mounting	Wall mounting

## Features

Plug-in board	Power and ServiceBus module (PSB module) and maximum 8 plug-in A 32-48 stepper motor power stages. An additional plug-in for further developments
Power supply	24 to 48 V <sub>DC</sub> Up to 3.5 A per plugged-in power stage
Signal lines	2 m
Performance	PSB module USB: with integrated USB-RS 485 converter PSB module RS 485: without USB RS 485 converter, with addressing switch for operation of max. 32 addresses in 4 miniracks
Options	Fan: DC fan 80 x 80 x 32 mm, type NMB

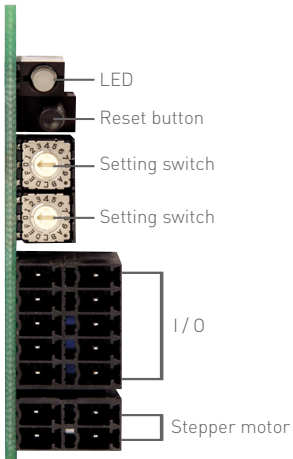
## Operating Conditions

Temperatures	Operation: +5 to +40 °C (We recommend an additional cooling in case of higher operation temperatures.) Storage: -25 to +55 °C Transport: -25 to +55 °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 61000-3-2 EMC Acc. to EN 61000-6-1, 2, 3, 4: EMC and RFI immunity
Approval	CE



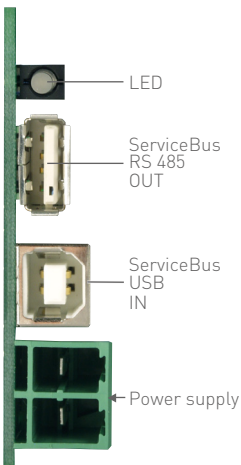
Dimensions in mm

Stepper Motor Power Stage A 32-48 MINI



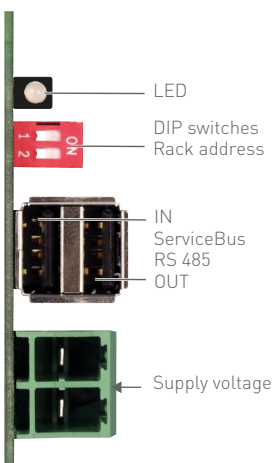
- Plug-in stepper motor power stage for control of 2 phase stepper motors
- Phase currents up to 3.5 A<sub>PEAK</sub>
- Supply voltage 24 to 48 V<sub>DC</sub>
- Status LED
- Reset key
- Setting switch run current and step resolution / preferential motor direction
- Operation parameter programming by setting switches or via ServiceBus
- Push-pull inputs: Control pulses, Direction, Boost, Activation
- Error output
- Front side connectors for wiring signal I/Os and stepper motor
- 48 pole rear connector for wiring supply voltage, logic voltage, ServiceBus and power stage addressing
- Size 60 x 116 x 20 mm
- Adapted for mounting in a type MR 8<sup>+</sup> minirack

Power- and ServiceBus Module USB



- PSB-USB with integrated USB converter
- Supply voltage 24 to 48 V<sub>DC</sub>
- LED green, if ready
- 5 V logic voltage for A 32-48 power stage
- Modes: ServiceBus mode or setting switch mode

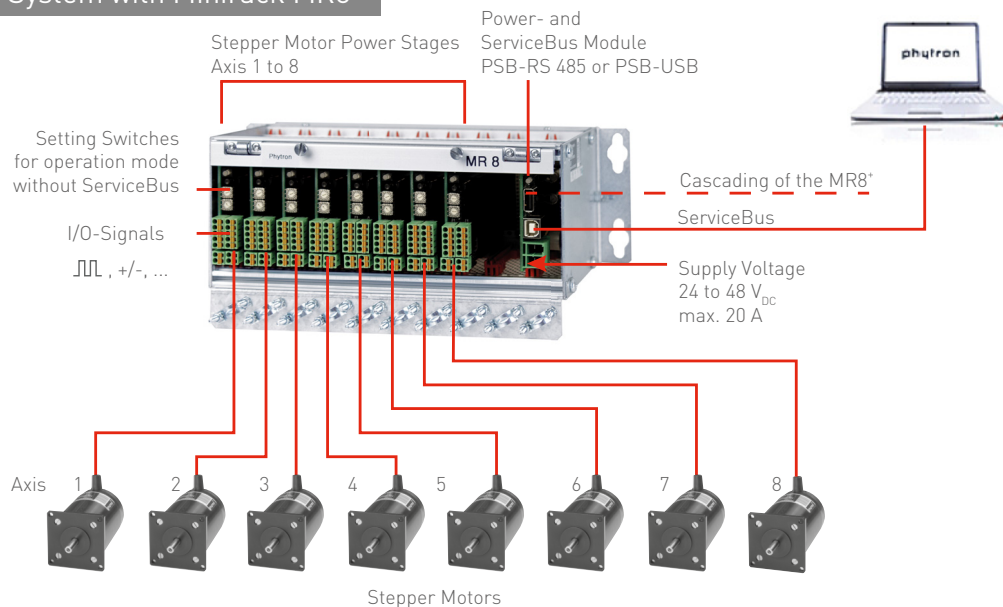
Power- and ServiceBus Module RS 485



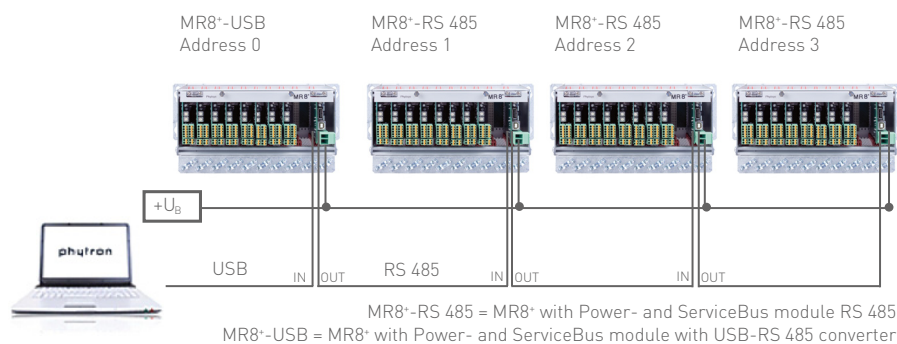
- PSB-RS 485 without integrated USB converter
- Supply voltage 24 to 48 V<sub>DC</sub>
- DIP switches for the addressing of max. 32 axes in 4 miniracks
- LED green, if ready
- 5 V logic voltage for A 32-48 power stage

## Control

## Automation System with Minirack MR8+

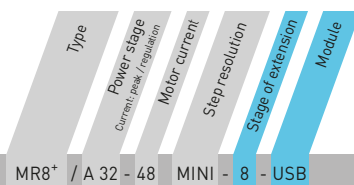


## Cascading MR8+ in the ServiceBus Mode



## Ordering Code

The variable elements of the products are displayed in colour.



Ordering code MR8+ / A 32 - 48 MINI - 8 - USB

## Options

Stage of extension	1 - 8	1 to 8 power stages
Power- and ServiceBus module	USB RS 485	USB interface RS 485 interface

WINDOWS® is a trade mark of Microsoft.

LabVIEW® is a trade mark of National Instruments Corporation.

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

## Extent of Supply

- MR8+ with PSB-USB or PSB-RS 485
- Mating connector set

## Optional Accessories

- A 32-48 power stage with mating connectors
- Ventilator plate with 2 fans and mating connectors
- ServiceBus cable
- USB cable
- RS 485-USB converter

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