INDUSTRIAL

MCC-1

Programmable controller for one axis

The MCC-1, phytron's freely programmable dual axis stepper motor controller, is a compact stand-alone unit for 2 phase stepper motors providing up to 3.5 A_{PEAK} phase current.

Controllers in the MCC series have many inputs and outputs (digital and analogue) and encoder inputs for step position monitoring plus possibilities to connect limit switches all as standard.

Due to the viariety of available host interfaces (USB, Ethernet etc.), the MCC can be quickly and easily integrated into existing applications.

This controller is easy to program and can operate either directly (remote) via its bus or stand-alone (local) with the program routines stored within.

Applications

As a compact stand-alone device, it convinces expecially in small experimental setups, machines and equipment, which can be dispensed in a PLC.

In Focus

Stand-alone | Integrated Driver | Digital | Analogue | El. Isolated

- 1 axis stepper motor control unit with integrated power stages
- Bipolar control of 2 phase stepper motors
- Phase currents up to 3.5 A_{PEAK}
- Power supply 24 to 48 V_{DC}
- Step resolution 1/1 up to 1/256 step
- Host interfaces: USB, Ethernet, RS 485 or RS 232
- Interfaces:
  - 1 encoder
  - 1 analogue input
  - 8 bidirectional, digital inputs and outputs
  - 2 limit switches
  - 2 redundant designed enable inputs
- Programming in well-tried MiniLog format, acc. to DIN 66025 or in LabVIEW®
- LabVIEW® driver for including the MCC in your LabVIEW® project
- Remote or local mode

Highlights

Stand-alone

Stand-alone

Once programmed the MCC-1 can work without additional PC/controller.

All-in-one solution

A compact device with controller, I/O and power stage by 55 x 127 x 110 mm

LabVIEW®

LabVIEW® is a simulation software with a graphical interface. Use the VIs (Virtual Instruments) generated by phytron and integrate them in your LabVIEW® project. So you can easily control the MCC from your usual programming environment.

MiniLog-Comm®

MiniLog-Comm® is phytron's communication software running under Windows® to facilitate programming of the stepper motor controller. It provides quick and easy generation of sequential programs.

The MiniLog-Comm® software is delivered free with phytron controllers and offers additional functions for test mode, step by step control or single sequence command execution of a motor move, a motor status window and even a Motion Creator.

Industrial

Specification

Mechanical

Dimensions (W x H x D)	55 x 127 x 110 mm; 73 x 127 x 110 mm with attached USB converter or terminal adaptor
Weight	Approx. 660 g
Mounting	Wall or rail mounting

Features

Stepper motors	Suitable for the control of 2 phase stepper motors with 4, (6) or 8 lead wiring
Supply voltage	Controller and motor: 24 to 48 V_{DC}; Limit switches and outputs: 24 V_{DC}
Phase current	Up to 3.5 A_{PEAK}
Step resolution	1/1, 1/2, 1/4, 1/5, 1/8, 1/10, 1/20; for smoother motor rotation: 1/32, 1/64, 1/128 up to 1/256 step of a full step
Step frequency	40,000 steps/sec
Hardware error detection	• Short circuit (between phase and power supply; between both phases; within a motor against ground)) • Over temperature • Under voltage
Cable length	Motor: shielded: 50 m max. Signal: shielded: 100 m max.
Diagnostic LEDs	Ready, busy, ERROR
Operating mode	"Remote" - via bus; "Local" - stand-alone mode with sequence program

Interfaces

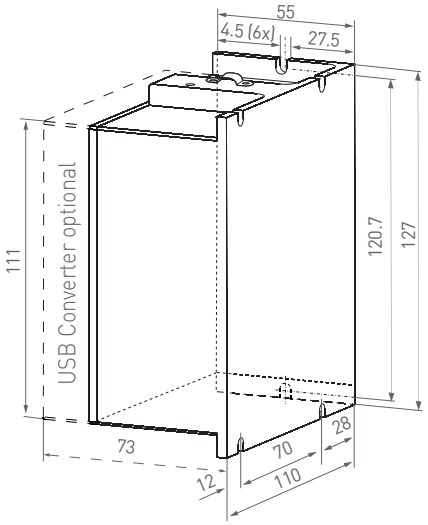
Analog outputs	A, B, C, D for a 2 phase stepper motor
Digital outputs	8 digital I/Os - programmable as in- or output - overload-proof, each electrically isolated from power supply / 24 V power supply fed separately; the maximum load is 1 A on each output; 4 A for all outputs
Host interfaces	Optional: USB, Ethernet, RS 485, RS 232
Analog inputs	2 x 10 Bit AD converter e. g. for a joystick. The joystick power (5 V_{DC}; 100 mA max.) is provided by the controller
Digital inputs	• 8 digital I/Os - programmable as in- or output - electrically isolated, 24 V input level • 2 limit switches: type PNP NCC or NOC • 1 encoders for optional differential incremental encoder or SSI absolute encoder; provided by the controller (5.3 V_{DC}, max. 200 mA) • 2 Motor Enable

Communication and Programming

Programming	MiniLog format acc. to DIN 66025 – MiniLog-Comm® (included in delivery) – LabVIEW® VIs (included in delivery)
Memory	128 kB program memory

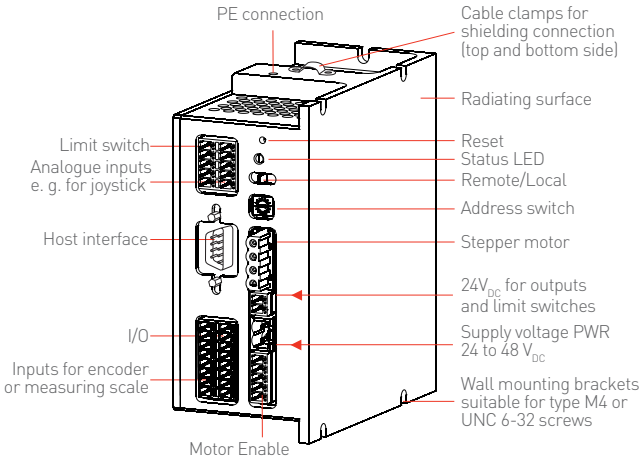
Operating Conditions

Temperatures	Operation: +5 to +50 °C; storage and transport: -10 to +60 °C
Degree of pollution	Level 2
Relative humidity	5 to 85 %, class 3K3 non-condensing
Protection class	IP 20
EMC immunity/ EMC emission	Acc. EN 61000-3-2 EMC Acc. EN 61000-6-1, -3, -4 EMC and RFI immunity Acc. EN 6100-4-2...6, -11 Immunity testing
Approval	CE

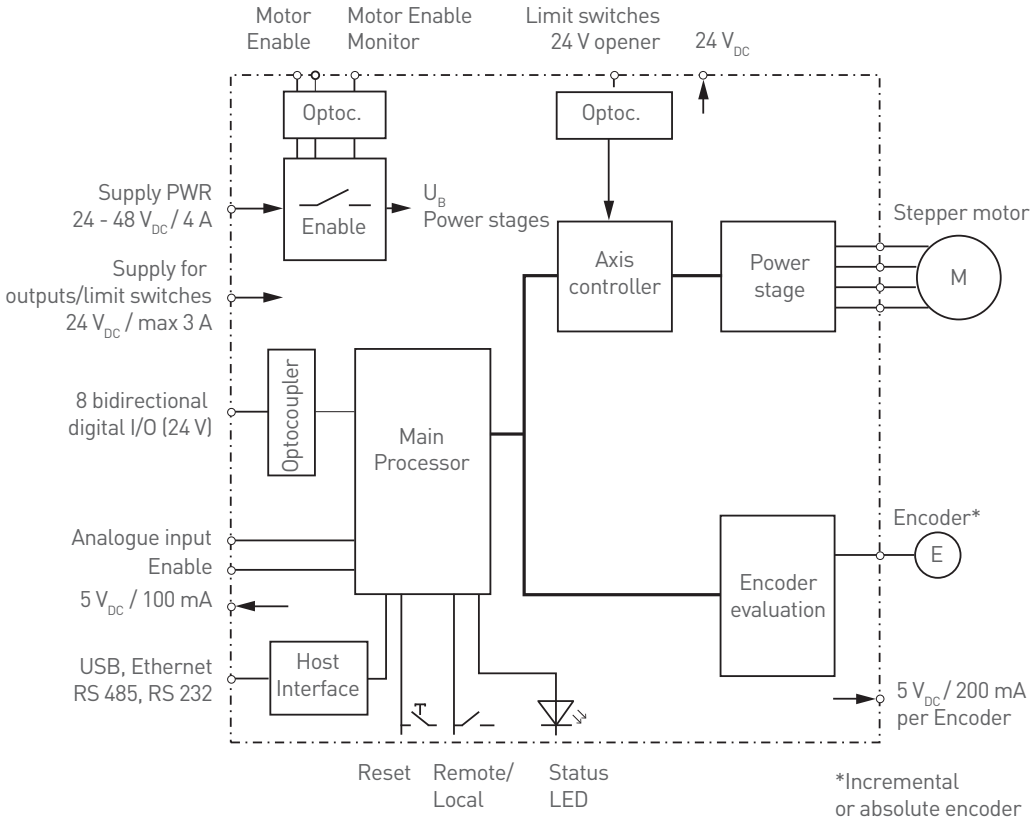


Dimensions in mm

Front View



Block Diagram



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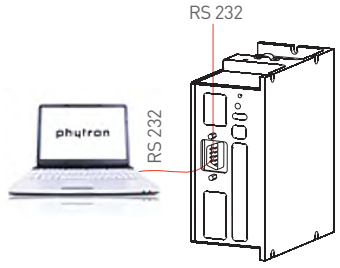
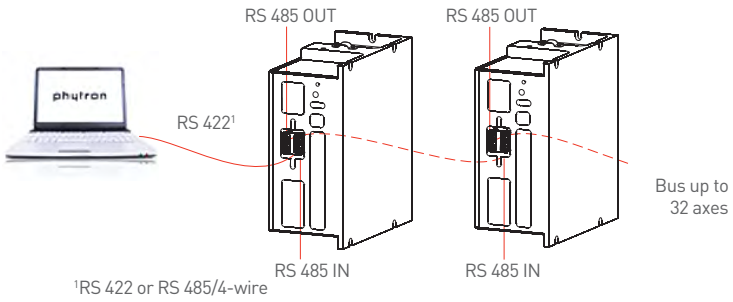
Configurations

MCC-1 with RS 232 Port

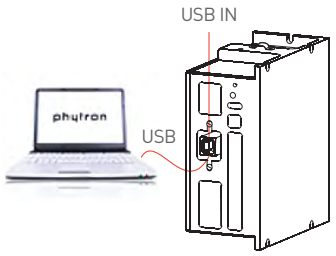


MCC-1 with RS 485 Port / Stand-alone Mode / Bus Mode

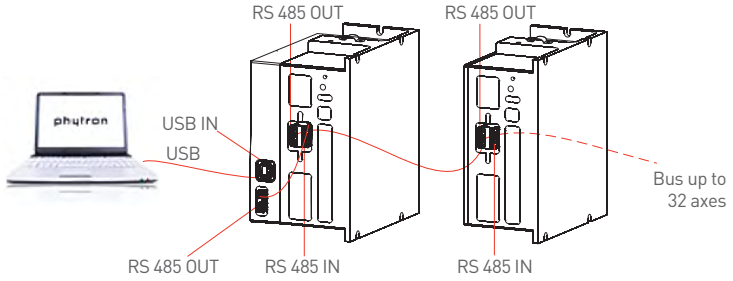


[1]RS 422 or RS 485/4-wire

MCC-1 with USB Port



MCC-1 with attached USB Converter and RS 485 Port / Bus Mode



Ordering Code

The variable elements of the product are displayed in colour.

	Type	Current / Chopper	Motor voltage	Step resolution	Host interface	Mounting	Terminal adaptor
Ordering code	MCC-1	- 32	- 48	MINI	- USB	- W	- B

Options		
Host interface	USB ETH RS 485 RS 485-USB RS 232	USB port Ethernet port RS 485/4-wire port RS 485/4-wire + USB converter RS 232 port
Mounting	W H	Wall mounting With attached clip for DIN rail mounting
Adaptor	B	RS 232 adaptor for BT 5 operator terminal

Extent of Supply

- A CD-ROM with MiniLog-Comm® software, LabVIEW® VIs and USB driver
- Connector set

Optional Accessories

- Cable assembly
- Power supply unit SPH 240-4805
- BT 5 operator terminal
- Mini USB-RS 485 converter

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