

CCD 93-70 MINI

phytron

Stepper Motor Power Stage with Plain Text Display

The CCD Power Stage

CCD 93-70 MINI is a ministep power stage with plain text display, designed for driving 2-phase stepper motors up to $9 A_{PEAK}$.

The step resolution is entered by menu: 200, 400, 500, 800, 1000, 1600, 2000 or 4000 steps per revolution with a 200-step type motor.

CCD can be connected to a DC or AC supply voltage: 24 to 80 V_{DC} or 24 to 57 V_{AC}.

The CCD power stages use phytron's well-tried technology, now with the enhanced 4 quadrant chopper type current control mode.

The push-pull inputs are compatible to the RS422 standard: pulses, direction, boost, deselect, reset, deactivation. All inputs and the potential-free open-collector outputs – ready and error – are electrically separated from the power stage supply voltage.

A mounting kit for DIN rail or wall mounting in a switching cabinet is included.

Menu Control and Plain Text Display



Fig. 1

Three buttons and a double-spaced plain text display are enough for using the menu control of the CCD.

In the SETUP menu the parameters step resolution, run, stop and boost current are programmed and can be changed at any time.

The TEST menu allows to drive the motor for test with the programmed parameters, to set the outputs and to display the input states.

Active parameters are displayed during motor running: phase current, voltage or power stage temperature (optional).

The plain text display changes in case of an error: short circuit, undervoltage or over-temperature.

Dimensions / Front View

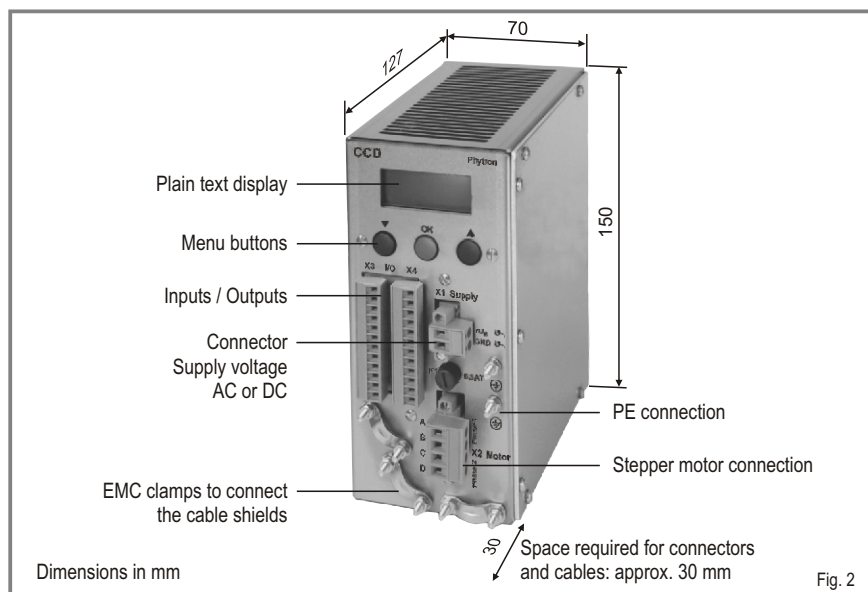
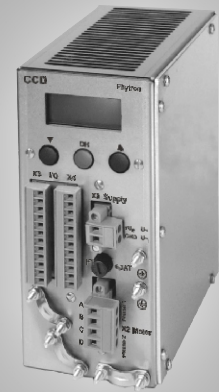


Fig. 2



Technical Information

- Ministep power stage
- Bipolar control of 2-phase stepper motors
- Phase currents from 0.14 to $9 A_{PEAK}$
- AC or DC supply
24 to 57 V_{AC} or 24 to 80 V_{DC}
- Step resolution up to 1/20 step
- Inputs compatible to RS422 for safe operation
- Input logic 5 V or 24 V
- Menu-driven parameter input
- Plain text display 2 x 6 digits
- Compact design 70 x 150 x 127 mm
- Userfriendly screw connectors
- Fully EMC compliant metal housing
- Integrated EMC filter for supply voltage
- DIN rail or wall mounting
- Prepared for mounting an external 24 V fan
- Optional temperature monitoring module

Inputs

The control inputs are electrically insulated from the motor supply voltage by optocoupler. The signals are active, when current flows through the optocoupler.
 Push-Pull or Open Collector Controlling
 Input level: 5 V or 24 V

Control pulses:

Maximum step frequency 250 kHz
 Minimum pulse width 2µs

Direction: The motor rotates in the reverse preferential direction.

Boost: The current is increased by the preselected value.

Deactivation: The motor current is powered off.

Deselect: Pulse inhibit. When the input is not connected, the CCD is ready for operation.

Reset: All error messages are reset, the monitoring circuits are initialized.

Temperature sensor: Connection of a temperature sensor for CCD with a temperature monitoring module (optional).

Outputs

Open-Collector outputs, optically insulated from the motor voltage
 $I_{max} = 20 \text{ mA}$, $U_{max} = 30 \text{ V}$,
 $U_{CE \text{ sat}} \text{ at } 20 \text{ mA} < 1 \text{ V}$

Ready: CCD is ready for operation.

Error: Short circuit, undervoltage, overtemperature

Temperature outputs T1, T2:

For 2-stage temperature monitoring in CCD with optional temperature monitoring

Temperature Monitoring Module (optional)

- For connection of a motor built-in temperature sensor
- Temperature sensors type K or Pt
 K: -40 to +300 °C
 Pt: -200 to +300 °C
- Degassing optional

Accessories

- Fan 24 V_{DC}
- Connector set
- Mains transformer 230/115 V_{AC}
- Power supply unit PS 5-48
- Power supply unit PS 10-24

Input Wiring Diagram

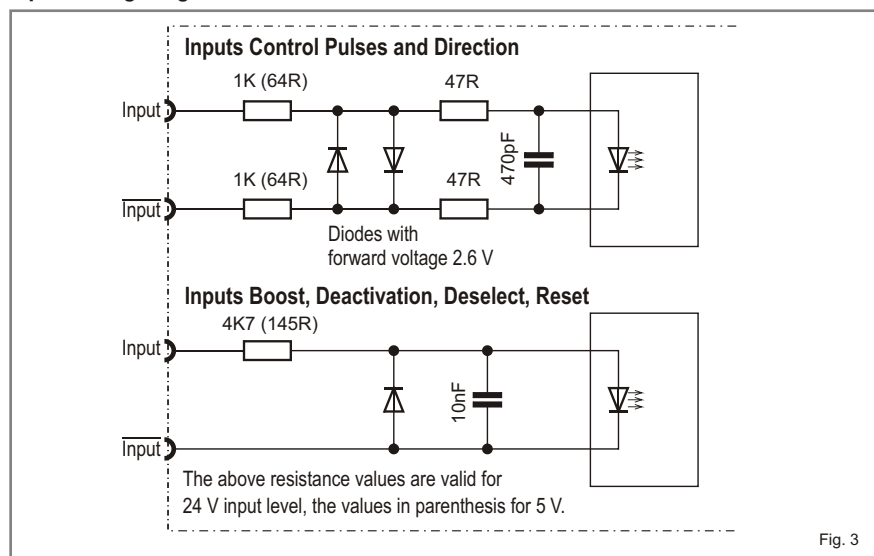


Fig. 3

Output Wiring Diagram

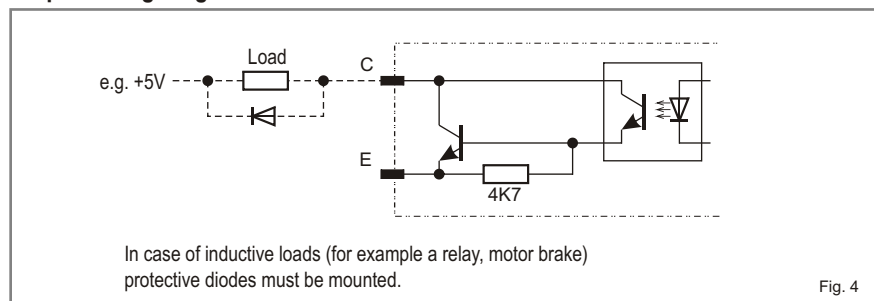


Fig. 4

Ordering Code

	CCD 93 - 70 MINI - H - 5 - T
Type	CCD = Stepper motor power stage
Peak current	9 = 9 A
Current regulation	3 = 4-Quadrant-chopper current control
Motor voltage	70 = 70 V
Step resolution	MINI = Step resolution 1/1 to 1/20 step
Mounting kit	H = DIN Rail mounting kit W = Wall mounting kit
Input level	5 = 5 V 24 = 24 V
Option	T = Module for motor temperature monitoring