

Linear Controller

4-Quadrant

For combination with:
DC-Micromotors
with maximum 3,5 A starting current

Series LC 3002

	LC 3002 A			Units
	Minimum	Typical	Maximum	
Nominal power ¹⁾	–	20	40 ²⁾	W
Power supply voltage:				
– DC supply	12	–	32	V DC
– AC supply	10	–	22	V AC
Motor supply voltage	–	–	26	V DC
Output current, continuous	–	2	–	A
Tachogenerator voltage	–	–	50	V
Command voltage	–	± 10	–	V
Fault output (open collector)	24 V DC – 20 mA max. via a potentialfree contact			
Enable input	0 ... 10			V
External command voltage I _{dyn}				
Temperature range:				
– operation	0	–	+ 70 ³⁾	°C
– storage	–20	–	+ 80	°C
Weight	–	300	–	g

¹⁾ Maximum power which can be dissipated by the Servo Amplifier ³⁾ Derating at higher temperature to be taken in consideration

²⁾ With additional heat sink

General description

The Linear 4-quadrant Servo Amplifier LC 3002 is designed for use with highly dynamic brush commutated DC-Micromotors, which feature ironless rotors (System Faulhaber®). The LC 3002 does not generate electromagnetic radiation and does not require motor inductors.

The voltage loss in the Servo Amplifier is 6-7 Volt. Therefore, the maximum possible motor supply voltage is always 6 Volt less than the power supply voltage of the amplifier.

Option:
Connector with the crimp-to-wire

The LC 3002 can be operated in various operating modes:

- in velocity mode (Motor-Tacho feedback)
- in velocity mode (IR Compensation)
- in current control (Torque) mode
- it can also be operated as voltage drive.

Features

Operating modes

Various operating modes can be selected via DIP switches:

- **Motor-Tacho feedback control** (Speed control)
The motor speed is regulated by the DC-tachogenerator.
- **IR Compensation control** (Speed control)
Sensing of motor current and compensation of load-dependent speed drop through voltage.
- **Voltage drive** (Voltage control)
Setting of a constant motor voltage (the motor speed is about proportional to the voltage).
- **Current control** (Torque control)
Setting of a constant motor torque (the current is proportional to the torque).

Command voltage

The command voltage input can either be set via an external voltage source or via a potentiometer.

Dynamic current limit (I_{dyn})

The limit value can either be set via an external command voltage or the on board I_{dyn} potentiometer.

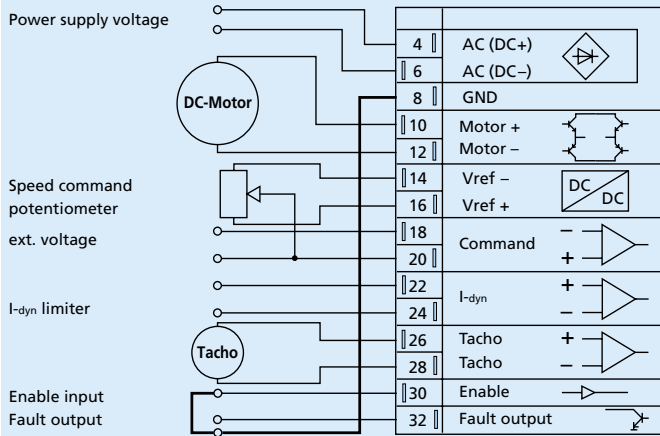
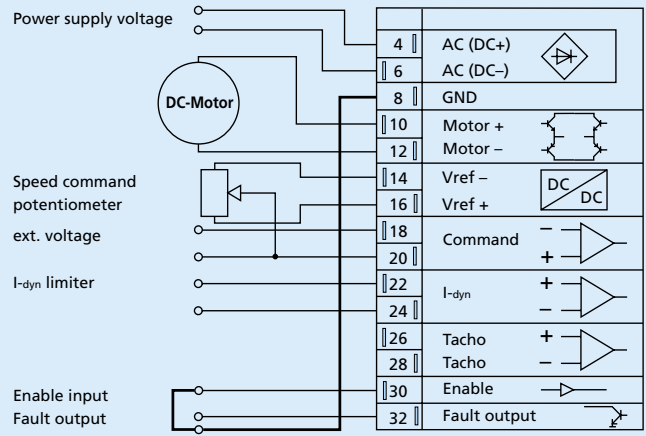
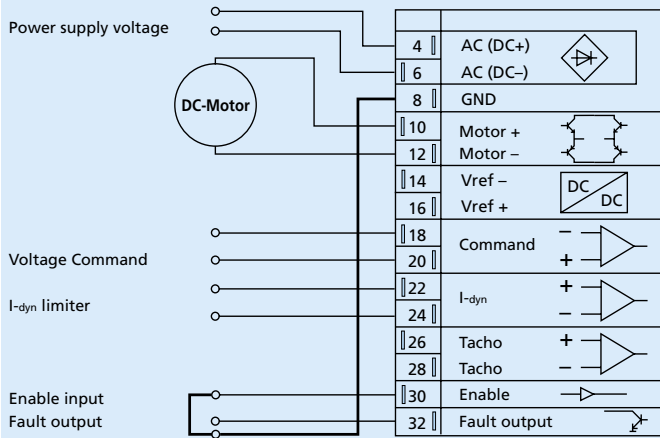
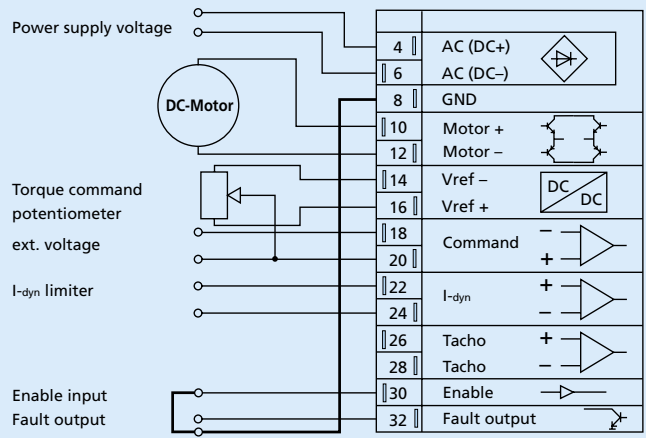
Enable input

The linear controller is enabled by closing a switch. Opening this contact disables the power stage.

Fault output

Fault output via open collector. The following functions are monitored:

- dynamic current limiting circuit is active
- motor in short circuit (the error is stored)
- over temperature at heat sink

Motor-Tacho feedback control (Speed control)

IR Compensation control (Speed control)

Voltage drive (Voltage control)

Current control (Torque control)

Dimensional drawing and connection information
