



Equipment

- RS232 interface and RS485 interface
- CANopen or Profibus DP
- 10 digital inputs (8 programmable)
- 3 digital outputs (2 programmable)
- Clock/direction interface
- 2 Encoder inputs (incremental)
- Optically decoupled encoder output

→ DC Supply		
Power supply	V _{DC}	24 ... 170
Recommended fuse for power supply	A	10 (slow)
Logic supply	V _{DC}	24 (18-30)
Recommended fuse for logic supply	A	3 (slow)
→ Data of Power Output Stage		
Maximum effective current per phase	A _{RMS}	8.5
Maximum phase current	A _{DC}	12
Rated output current	A _{RMS}	7
Maximum output voltage	V _{DC}	170
Rated output voltage	V _{DC}	150
Minimum inductivity of motor winding	mH	0.5
Maximum length of motor cable	m	10
Frequency of output current ripple	kHz	16.4
→ Data of Brake Control		
Output voltage (depending on logic supply)	V _{DC}	24
Output voltage reduced	V _{DC}	12
Output current 100 ms / permanent	A	0.8 / 0.5

Functions

- Operation of 2-phase brushless synchronous motors
- Operation of 2-phase synchronous linear motors (ECOLIN® 200)
- Operation of brushed DC servo motors
- Operation of stepper motors
- Torque, force, speed, and positioning control
- Interpolation via CANopen

→ Control Signals

Digital inputs	V	24
	mA	2
Digital outputs	V	24
	A	0.5
Analogue input	- 10 V to + 10 V	
	10 bit resolution	
Analogue monitor outputs	0 ... 5 V	
	8 bit resolution	

→ Dimensions and Weights		
Dimensions W x H x D	mm	62 x 240 x 170 (without mating connector)
Weight	kg	1.8
Housing		Aluminium, passivated, in conformance with RoHS
Cable clamping and strain relief		metal clamps, max. cable diameter 15 mm
→ Ambient Conditions		
Class	3K3 acc. to EN 50178	
Ambient temperature during operation with rated load	5 ... 40 °C	
Storage temperature	- 10 ... 70 °C	
Degree of humidity (non-condensing)	max. 95% of rel. humidity	
Cooling	mounting on supporting plate	
Installation altitude	max. 1500 m above mean sea level without power reduction	
Mounting position	The technical data refer to a vertical mounting position	
Protection class	IP20, pollution degree 2	
Applied standards for CE	EMC acc. to EN61800-3, safety acc. to EN61800-5-1	
Applied standards for UL	UL508C	



Basic Functions

- Digital speed and position control with position, speed, and torque limiting
- Digital filter functions effective on resonant loads
- Parameterisable velocity profiles with jerk limiting
- Short circuit, voltage, temperature, encoder, tracking error and I^2xt monitoring
- Parameterisation via RS232, RS485, CANopen, or Profibus DP
- Scalable analogue input for any setpoint
- Scalable analogue monitors for any actual value
- Intelligent control of a holding brake with automatic voltage reduction
- Limit switch and reference sensor evaluation, various reference point approach modes
- Enabling of output stage and reset of fault conditions via digital inputs
- Readiness for operation message via digital output
- Setting of field bus node address via DIP switch
- Status indication via 4 LEDs

Positioning Control on Field Bus

- Setpoint setting via RS232, RS485, CANopen, or Profibus DP
- Point-to-point control
- Path interpolation via CANopen

Master / Slave Positioning

- Parameterisable electric gearbox
- Master position via encoder signals or CANopen

Positioning with Clock / Direction Setpoint

- Scalable setpoint setting via RS422 for clock / direction signals

Positioning with Digital I/O Interface

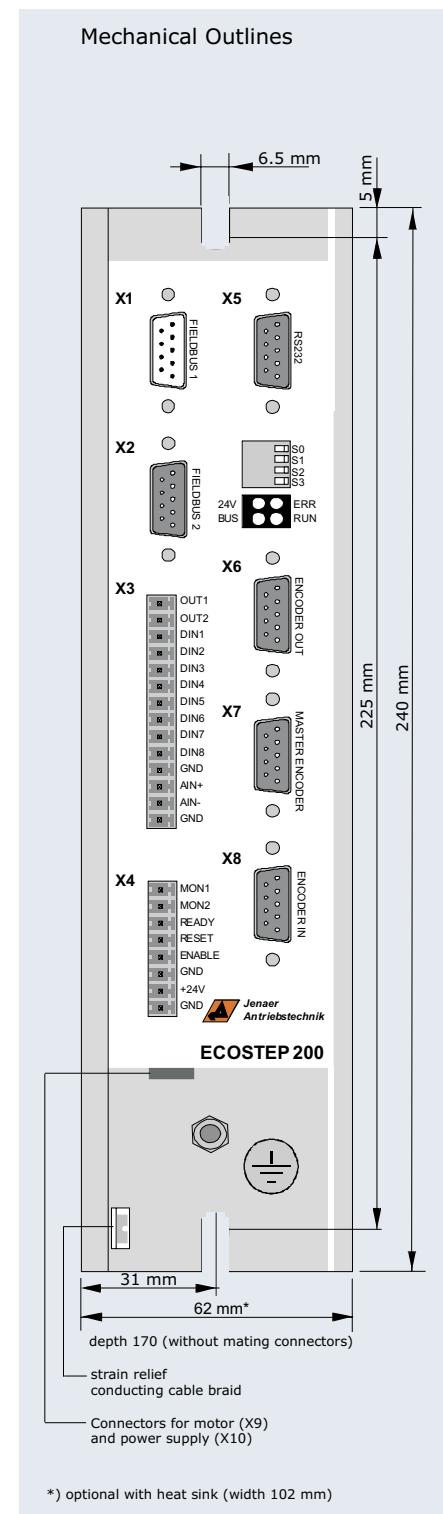
- 256 motion profiles storable
- 8 digital inputs
- 2 digital outputs
- Event-based control concept

Joystick Operation

- Parameterisable joystick table for speed or position with 256 entries
- Joystick connection to +/-10 V analogue input

Speed Setting with Analogue Setpoint

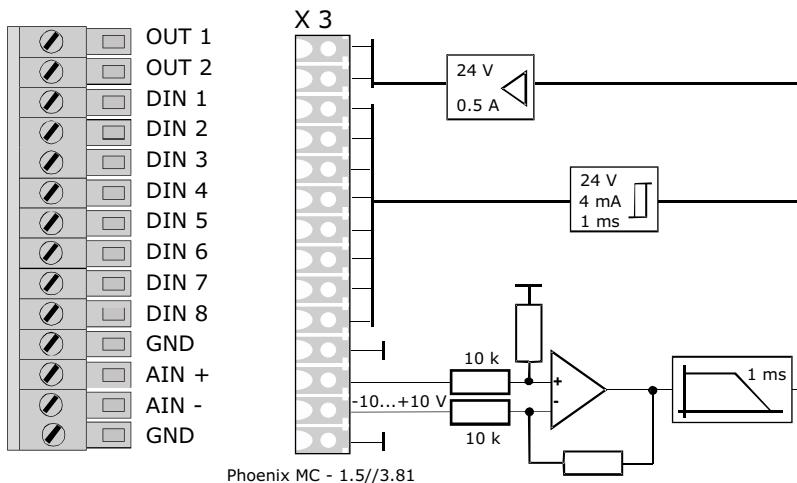
- Scalable speed setpoint via +/-10 V analogue input
- 10 bit resolution



*) optional with heat sink (width 102 mm)

Connections

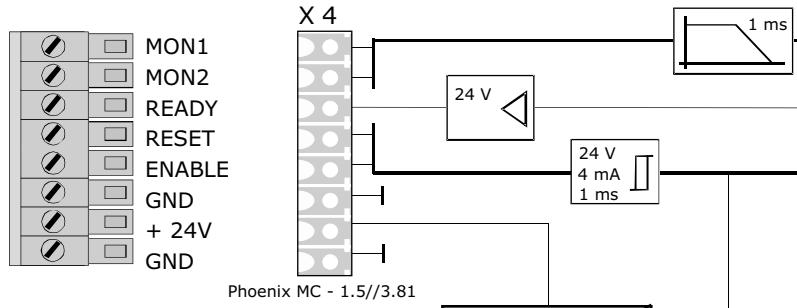
Output 1	
Output 2	
Input 1	DIN 1
Input 2	DIN 2
Input 3	DIN 3
Input 4	DIN 4
Input 5	DIN 5
Limit switch pos.	DIN 6
Limit switch neg.	DIN 7
Home switch	DIN 8
Signal ground	GND
Analog input +	AIN +
Analog input -	AIN -
Signal ground	GND



- digital I/O PLC interface
- running configurable motion profiles
- controlling/monitoring of motion ranges / profiles, homing

analog command input
for position and velocity
10 bit resolution

Monitor 1	MON1
Monitor 2	MON2
Ready	READY
Error reset	RESET
Enable powerstage	ENABLE
Signal ground	GND
Supply +24 V	+ 24V
Supply ground	GND



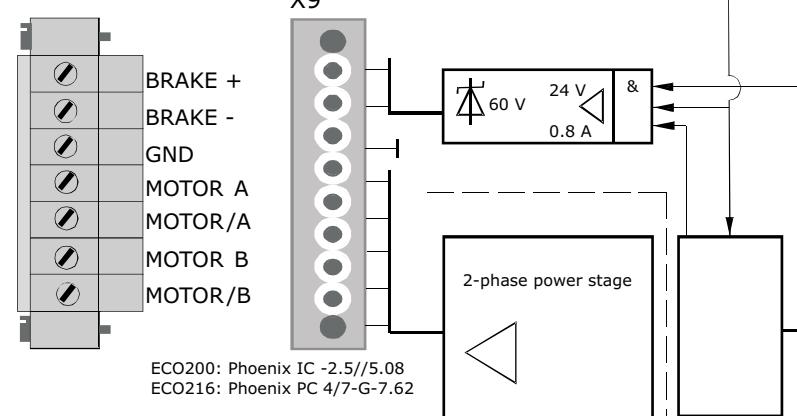
2 analog monitors
scalable, configurable
8 bit resolution

digital output: ready

- digital inputs:
- powerstage enable
 - error reset

monitoring supply voltage,
reset logic

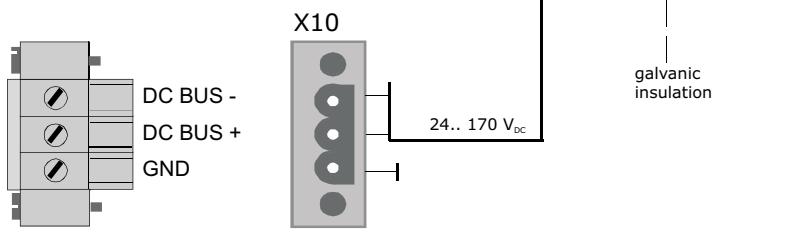
Brake +	BRAKE +
Brake -	BRAKE -
Motor phase A	GND
Motor phase /A	MOTOR A
Motor phase B	MOTOR/A
Motor phase /B	MOTOR B
	MOTOR/B



intelligent brake control providing
automatic voltage reduction

- control of the powerstage
enable monitoring:
- short circuit
 - overvoltage and undervoltage
 - overtemperature power stage

DC bus ground	DC BUS -
DC bus +	DC BUS +
	GND



galvanic
insulation

Interfaces

RS232 serial interface for parameter setting, configuration, control, interface for setup by a PC

Field bus interface CANopen (DS 402)

Field bus interface: RS 485 (published protocols) or Profibus DP

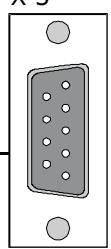
ID setting for serial network operation

4 LEDs for indication of device status

quadrature encoder input:
configurable electronic gear box functions or clock/direction

quadrature encoder input:
for commutation, current, speed and position control

X 5

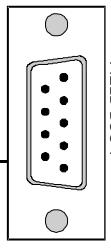


RS232

1:1 direct connection to a PC COM

Pin	Signal at PC
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

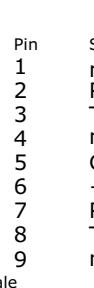
X 1



CAN

Pin	Signal
1	nc
2	CAN_L
3	CAN_GND
4	nc
5	nc
6	GND
7	CAN_H
8	nc
9	CAN_V+

RS485



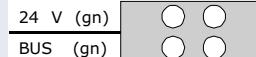
Profibus DP

Pin	Signal	Signal
1	nc	nc
2	Rx +	nc
3	Tx +	RxD/TxD-P
4	nc	CNTR-P
5	GND	DGND
6	+5V	VP (+5V)
7	Rx -	nc
8	Tx -	RxD/TxD-N
9	nc	nc

Code switch for network ID

0...15

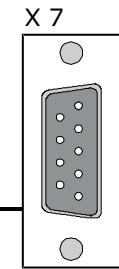
Status LED



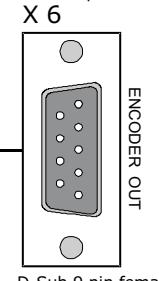
ERR (red)
RUN (gn)

Input Master Encoder

Pin	Incremental	Clock/direction
1	+5V, max.	200 mA
2	A	Clock
3	B	Direction
4	N	
5	GND	
6	/A	GND
7	/B	/Clock
8	/N	/Direction
9		



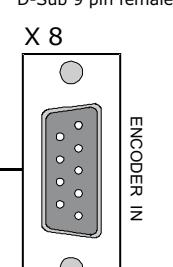
X 7



X 6

Output Motor Encoder

Pin	Signal
1	+5V
2	A
3	B
4	N
5	nc
6	GND
7	/A
8	/B
9	/N



X 8

Input Motor Encoder

Pin	Signal
1	+5V
2	A
3	B
4	N
5	nc
6	GND
7	/A
8	/B
9	/N