Motion Controller

V2.5, 4-Quadrant PWM
with RS232 or CAN interface

For combination with:
Linear DC-Servomotors
with analog Hall sensors

Series MCLM 3002

		MCLM 3002 P	MCLM 3002 F	MCLM 3002 S	
Power supply	U_B	5 ... 30	5 ... 30	5 ... 30	V DC
PWM switching frequency	f_{PWM}	78,12	78,12	78,12	kHz
Efficiency	η	95	95	95	%
Max. continuous output current [1]	I_{dauer}	2	2	2	A
Max. peak output current	I_{max}	3	3	3	A
Total standby current	I_{el}	0,04	0,04	0,04	A
Speed range [2]		2 ... 10 000	2 ... 10 000	2 ... 10 000	mm/s
Scanning rate	N	200	200	200	µs
Encoder resolution with linear Hall Sensors [3]		3 000	3 000	3 000	inc./τ_m
Resolution with external encoder		≤ 65 535	≤ 65 535	≤ 65 535	inc./mm
Input/output (partially free configurable)		3	3	3	
Program memory: [4]					
– memory size		3,3	3,3	3,3	kWord
– Number of instructions		ca. 1 000	ca. 1 000	ca. 1 000	instructions
Operating temperature range		– 25 ... + 85	– 25 ... + 85	– 25 ... + 85	°C
Weight		7	13	16	g

[1] at 22°C ambient temperature
[2] Speed in the range 1 ... 5 mm/s may have fluctuations due to the motor type, load characteristics and controller parameters
[3] τ_m is the magnetic pitch of the linear motor
[4] Only for version with serial interface

Connection information					
Connection communication:					
Interface			RS232	CAN	
Communication profile			FAULHABER - ASCII	CANopen	
Max. transfer speed rate RS232			115 200		baud
Max. transfer speed rate CAN				1	Mbit/s
Connection 3 "AGND":					
– analog ground			analog GND		
– digital input	external encoder		channel B		
		R_{In}	10		kΩ
		f	≤ 400		kHz
Connection 4 "Fault":					
– digital input		R_{In}	100		kΩ
– digital output (open collector)		U	≤ U_B		V
		I	≤ 30		mA
		clear	switched to GND		
		set	high-impedance		
	fault output	no error	switched to GND		
		error	high-impedance		
	signal output	f	≤ 2		kHz
		resolution	1...255		inc./τ_m
Connection 5 "AnIn":			"AGND" as GND		
– analog input	set position value	U_{In}	± 10		V
– digital input	external encoder		channel A		
		f	≤ 400		kHz
	step frequency input	f	≤ 400		kHz
		R_{In}	5		kΩ
Connection 6 "U_B":		U_B	5 ... 30		V DC
Connection 7 "GND":			ground		
Connection 8 "3. In":					
– digital input		R_{In}	22		kΩ
– electronic supply voltage		U_{EL}	5 ... 30		V DC

Connection information				
Connection 9-11 „Sensor A, B, C“:				
Hall sensor input	Sensor A		Hall Sensor A	
	Sensor B		Hall Sensor B	
	Sensor C		Hall Sensor C	
		U_{In}	≤ 5	V
Connection 12 “Ucc”:				
Output voltage for external use [1]		U_{Out}	5	V
Load current		I_{Out}	≤ 60	mA
Connection 13 “SGND”:				
Signal GND			Signal masse	
Connection 14-16 „Motor A, B, C“:				
Motor connection	Motor A		Phase A	
	Motor B		Phase B	
	Motor C		Phase C	
		U_{Out}	0 … U_B	V DC
PWM switching frequency		f_{PWM}	78,12	kHz

[1] E.g. Hall Sensors

The signal level (PLC or TTL) of the digital inputs can be set over the interface (see operating instruction manual).
Standard (PLC): Low 0...4,5V / High 12,5V... U_B, TTL: Low 0...0,5V / High 2,5V... U_B

Options

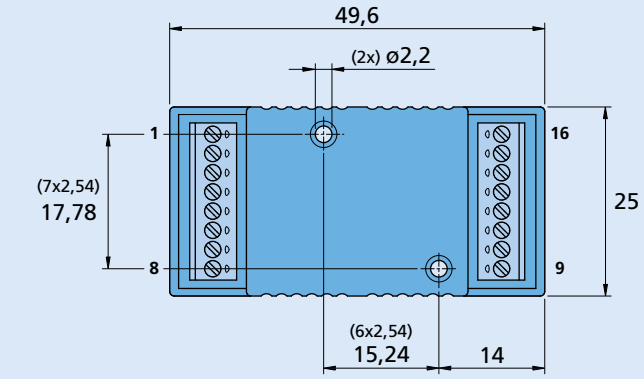
- Separate power supply (Option no.: 3085)

Full product description

- Example:
  MCLM 3002 S RS (RS232)
  MCLM 3002 F CF (CANopen with FAULHABER CAN)
  MCLM 3002 P CO (CANopen CiA)

Accessories		Motor Type	Part No.
Programming adapter	**RS232/CAN**	BL	**6501.00121**

Dimensional drawing and connection information MCLM 3002 S



MCLM 3002 S

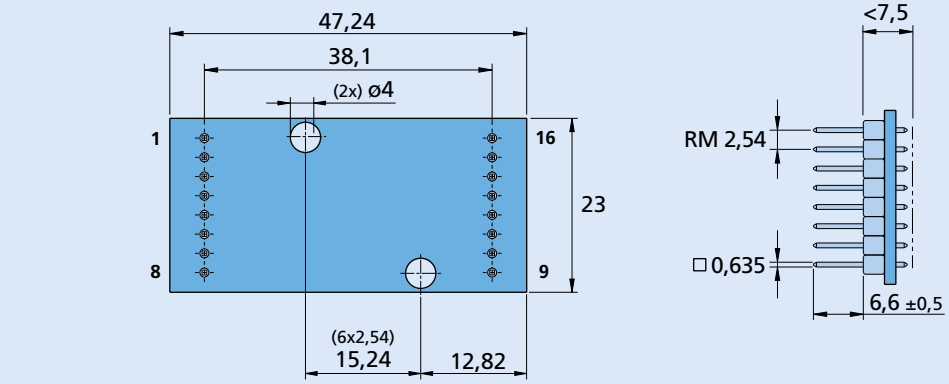
Supply connection

No.	Function
1	TxD / CAN_H
2	RxD / CAN_L
3	AGND
4	Fault
5	AnIn
6	U_B
7	GND
8	3. In

Motor connection

No.	Function
9	Sensor A
10	Sensor B
11	Sensor C
12	U_{CC}
13	SGND
14	Motor A
15	Motor B
16	Motor C

Dimensional drawing and connection information MCLM 3002 P



MCLM 3002 P

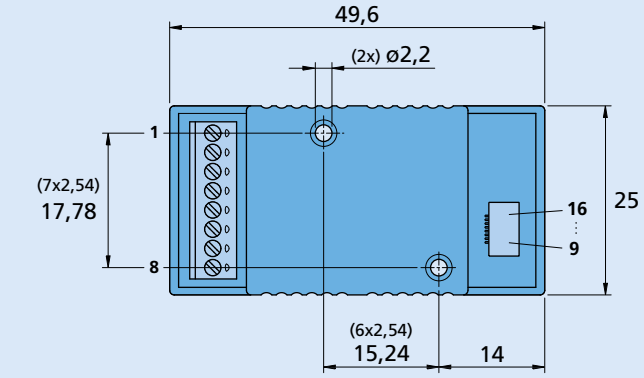
Supply connection

No.	Function
1	TxD / CAN_H
2	RxD / CAN_L
3	AGND
4	Fault
5	AnIn
6	U_B
7	GND
8	3. In

Motor connection

No.	Function
9	Sensor A
10	Sensor B
11	Sensor C
12	U_{CC}
13	SGND
14	Motor A
15	Motor B
16	Motor C

Dimensional drawing and connection information MCLM 3002 F



MCLM 3002 F

Connector Information
LIF-Connector 8-pole

Supply connection

No.	Function
1	TxD / CAN_H
2	RxD / CAN_L
3	AGND
4	Fault
5	AnIn
6	U_B
7	GND
8	3. In

Motor connection

No.	Function
9	Sensor A
10	Sensor B
11	Sensor C
12	U_{CC}
13	SGND
14	Motor A
15	Motor B
16	Motor C