



The Multi-Axis Controller V24 is designed as a driving joystick for construction and agricultural machinery. It has a parking position which can be inserted in the zero position. The V24 is characterized by its extremely rugged design. Long life and high reliability is ensured by the latest contactless hall-technology. Through its various interfaces and many possibilities of combination with our numerous ball grips the V24 is very flexible.

Technical data

Mechanical life V24	20 million operating cycles
Supply voltage	See interface
Operation temperature	-40°C to +85°C
Degree of protection	up to IP67
Functional safety	PLd compatible (EN ISO 13849, complies SIL2 to DIN EN IEC 61508)



	V24	P1	Example T	-R	-B10	-E...	-S...	-X
Basic unit								
V24.1	1-axis							
V24L	1-axis with parking position left							
V24R	1-axis parking position right							
Gate								
P1	T-gate main axis axial (included in basic unit!)							
P2	T-gate main axis right outside							
P3	T-gate main axis left outside							
PX	Special gate							
Grip / Palm Grip								
	Knob (included in basic unit!)							
T	Dead man							
H	Signal button							
D	Push button							
B...	Palm Grip B... (see page Palm Grip 154)							
Main axis								
R	Friction brake adjustable (included in basic unit!)							
Degree of protection								
B10	Joystick-main board sealed (IP67)							
B11	Joystick-main board sealed (IP67) and grip function sealed, grip with drain hole							
For a schematic description of the protection class, see page 150								
Interface (description see on the following pages)								
E1xx	Voltage output							
E2xx	Current output							
E3xx	CAN-interface							
E4xx	CANopen Safety interface							
E9xx	Other outputs							
Plug connectors								
S...	Standard plug connectors (see page 120)							
Special model								
X	Special / customer specified							

Combination possibilities with our grips

B1  p. 199	B2  p. 197	B3  p. 194	B5  p. 192	B6  p. 188	B7 B8  p. 188	B9  p. 186	B10  p. 184	B14 B15  p. 182
B20  p. 180	B22  p. 178	B23  p. 176	B24  p. 174	B25  p. 172	B26  p. 170	B28  p. 168	B29  p. 166	B30  p. 164
B31  p. 162	B32  p. 160	B33  p. 158	B34  p. 156	B35  p. 154				

Voltage output (not stabilized)

Supply voltage	4,75-5,25 V DC	
Mounting depth A	60 mm	
Wiring	1. cable 14 x 0,25 mm ² 500 mm long without plug connector 2. cable 14 x 0,25 mm ² (optional for grip function) 500 mm long without plug connector Optional with plug connector (<i>standard plug connectors see page 120</i>)	S
0,5...2,5...4,5 V redundant		
	1 axis	E103 1
	2 axis	2
	Output options	
	Characteristic:	
	Inverse dual	1
	Dual	2
	Inverse dual with dead zone +/- 3° (standard)	3
	Dual with dead zone +/- 3°	4

Voltage output

Supply voltage	9-32 V DC (*11,5-32)	
Current carrying capacity	Direction signal 150 mA Zero position signal 500 mA	
Mounting depth A	65 mm	
Option	Input for capacitive sensor	
Wiring	1. cable 14 x 0,25 mm ² 500 mm long without plug connector 2. cable 14 x 0,25 mm ² (optional for grip function) 500 mm long without plug connector Optional with plug connector (<i>standard plug connectors see page 120</i>)	S
0,5...2,5...4,5 V redundant + 2 direction signals + 1 zero position signal (galvanically isolated) per axis		
	1 axis	E112 1
	2 axis	2
	3 axis*	3
	4 axis*	4
	5 axis*	5
	6 axis*	6
0...5...10 V redundant + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, supply voltage 11,5 - 32 V DC		
	1 axis	E132 1
	2 axis	2

Technical details may vary based on configuration or application! Technical data subject to change without notice!

	3 axis*	3
	4 axis*	4
	5 axis*	5
	6 axis*	6
10...0...10 V + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, supply voltage 11,5 - 32 V DC, sensor redundant with error monitoring and error signal		
	1 axis	E136 1
	2 axis	2
	3 axis*	3
	4 axis*	4
	5 axis*	5
	6 axis*	6
Output options		
Characteristic:		
	Inverse dual *1	1
	Dual *1	2
	Inverse dual with dead zone +/- 3° *1 (standard)	3
	Dual with dead zone +/- 3° *1	4
*1 not combinable with output E136X + E138X		
	Single *2	5
	Single with dead zone *2 (standard)	6
*2 not combinable with output E112X and E132X		
*Axis for grip functions, interface can vary depending upon actuation element!		
Voltage output with other value on request!		

Current output		
Supply voltage	9-32 V DC	
Current carrying capacity	Direction signal 150 mA Zero position signal 500 mA	
Mounting depth A	65 mm	
Option	Input for capacitive sensor	
Wiring	1. cable 14 x 0,25 mm ² 500 mm long without plug connector 2. cable 14 x 0,25 mm ² (optional for grip function) 500 mm long without plug connector Optional with plug connector (standard plug connectors see page 120)	
0...10...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal		S
	1 axis	E206 1
	2 axis	2
	3 axis*	3
	4 axis*	4
	5 axis*	5
	6 axis*	6
20...0...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal		
	1 axis	E208 1
	2 axis	2
	3 axis*	3
	4 axis*	4
	5 axis*	5
	6 axis*	6

4...12...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal

1 axis	E214 1
2 axis	2
3 axis*	3
4 axis*	4
5 axis*	5
6 axis*	6

20...4...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal

1 axis	E216 1
2 axis	2
3 axis*	3
4 axis*	4
5 axis*	5
6 axis*	6

Output options

Single	5
Single with dead zone +/- 3° (standard)	6

*Axis for grip functions, interface can vary depending upon actuation element!

Current output with other value on request!

CAN

Supply voltage	9-36 V DC
Idle current consumption	120 mA
Mounting depth A	60 mm
Protocol	CANopen CiA DS 301 or SAE J 1939 (based on)
Baud rate	125 kBit/s to 1 Mbit/s
Wiring	CAN (IN) cable 300 mm with plug connector M12 (male) CAN (OUT) cable 300 mm with plug connector M12 (female) External in-/outputs cable 300 mm long without plug connector Optional with plug connector (standard plug connectors see page 120)

S

CAN

- 7 analog joystick axis
- 15 digital joystick functions
- *With the use of external inputs, the joystick functions are reduced by 7 pieces!
- Input for capacitive sensor

E312 1

With additional external in-/outputs

- 8 external LED-outputs, 1 switching output (potentialfree, 100 mA), 7 external digital inputs
- 16 external LED-outputs, 1 switching output (potentialfree, 100 mA), 7 external digital inputs

2

3

With additional digital outputs for the main-axis

- 2 direction signals + 1 zero position signal (potential-free) per axis

3

Additional analog outputs on request!

CANopen Safety		
Supply voltage	9-36 V DC	
Idle current consumption	120 mA	
Mounting depth A	60 mm	
Protocol	CANopen Safety EN50325-5	
Baud rate	125 kBit/s to 1 Mbit/s	
Wiring	CAN (IN) cable 300 mm with plug connector M12 (male)	
	CAN (OUT) cable 300 mm with plug connector M12 (female)	
	External in-/outputs cable 300 mm long without plug connector	
Optional with plug connector (standard plug connectors see page 120)		S
CANopen Safety		E411 1
- 7 analog joystick axis		
- 15 digital joystick functions		
*With the use of external inputs, the joystickfunctions are reduced by 7 pieces!		
- Input for capacitive sensor		
With additional external in-/outputs		
- 8 external LED-outputs, 1 switching output (potentialfree, 100 mA), 7 external digital inputs		2
- 16 external LED-outputs, 1 switching output (potentialfree, 100 mA), 7 external digital inputs		3
With additional digital outputs for the main-axis		
- 2 direction signals + 1 zero position signal (potential-free) per axis		3
Additional analog outputs on request!		

Other outputs			
Voltage output for PVG32 0,25...0,5...0,75Us, power supply 9-32 V DC			
Mounting depth A	60 mm		
Option	Input for capacitive sensor		
Wiring:	1. cable 14 x 0,25 mm ² 300 mm long without plug connector		
	2. cable 14 x 0,25 mm ² 300 mm long without plug connector (optional for grip function)		
Optional with plug connector (<i>standard plug connectors see page 120</i>)			S
	1 axis	E907 1	
	2 axis	2	
	3 axis	3	
	4 axis	4	
	5 axis	5	
	6 axis	6	
Main-axis with additional direction signals and zero direction signals (potential-free) per main-axis			3

Attachments		
Z01 Mating connector (CAN) M12 (male insert) with 2 m cable	20201140	
Z02 Mating connector (CAN) M12 (female contact) with 2 m cable	20202298	

