

# Multi-Axis Controller V24



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
<b>Basic unit</b>								
V24.1	Multi-Axis Controller, 1-axis							
V24L	Multi-Axis Controller, 1-axis with parking position left							
V24R	Multi-Axis Controller, 1-axis parking position right							
<b>Gate</b>								
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							
<b>Grip / Palm Grip</b>								
	Knob (included in basic unit!)							
T	Dead man							
H	Signal button							
D	Push button							
B...	Palm Grip B... (see page Palm Grip 161)							
<b>Main axis</b>								
R	Friction brake adjustable (included in basic unit!)							
<b>Degree of protection</b>								
B10	Joystick-main board sealed (IP67)							
B11	Joystick-main board sealed (IP67) and grip function sealed, grip with drain hole							
<i>For a schematic description of the protection class (see page 150)</i>								
<b>Interface (description see on the following pages)</b>								
E1xx	Voltage output							
E2xx	Current output							
E3xx	CAN-interface							
E4xx	CANopen Safety interface							
E9xx	Other outputs							
<b>Plug connectors</b>								
S...	Standard plug connectors (see page 125)							
<b>Special model</b>								
X	Special / customer specified							

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

## Combination possibilities with our grips

B1  p. 209	B2  p. 207	B3  p. 204	B5  p. 202	B6  p. 200	B7 B8  p. 198	B9  p. 196	B10  p. 194	B14 B15  p. 192
B20  p. 190	B22  p. 188	B23  p. 186	B24  p. 184	B25  p. 181	B26  p. 179	B28  p. 177	B29  p. 175	B30  p. 173
B31  p. 171	B32  p. 169	B33  p. 167	B34  p. 165	B35  p. 163	B36  p. 161			

### 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 <sup>2</sup> 500 mm long without plug connector 2. cable 14 x 0,25 mm <sup>2</sup> (optional for grip function) 500 mm long without plug connector		
	Optional with plug connector ( <i>standard plug connectors see page 125</i> )		S
0,5...2,5...4,5 V redundant			
	1 axis	E103	1
	2 axis		2
	<b>Output options</b>		
	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 <sup>2</sup> 500 mm long without plug connector 2. cable 14 x 0,25 mm <sup>2</sup> (optional for grip function) 500 mm long without plug connector		
	Optional with plug connector ( <i>standard plug connectors see page 125</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

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	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
<b>Output options</b>			
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 <sup>2</sup> 500 mm long without plug connector 2. cable 14 x 0,25 mm <sup>2</sup> (optional for grip function) 500 mm long without plug connector		
	Optional with plug connector (standard plug connectors see page 125)		
S			
0...10...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal			
	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

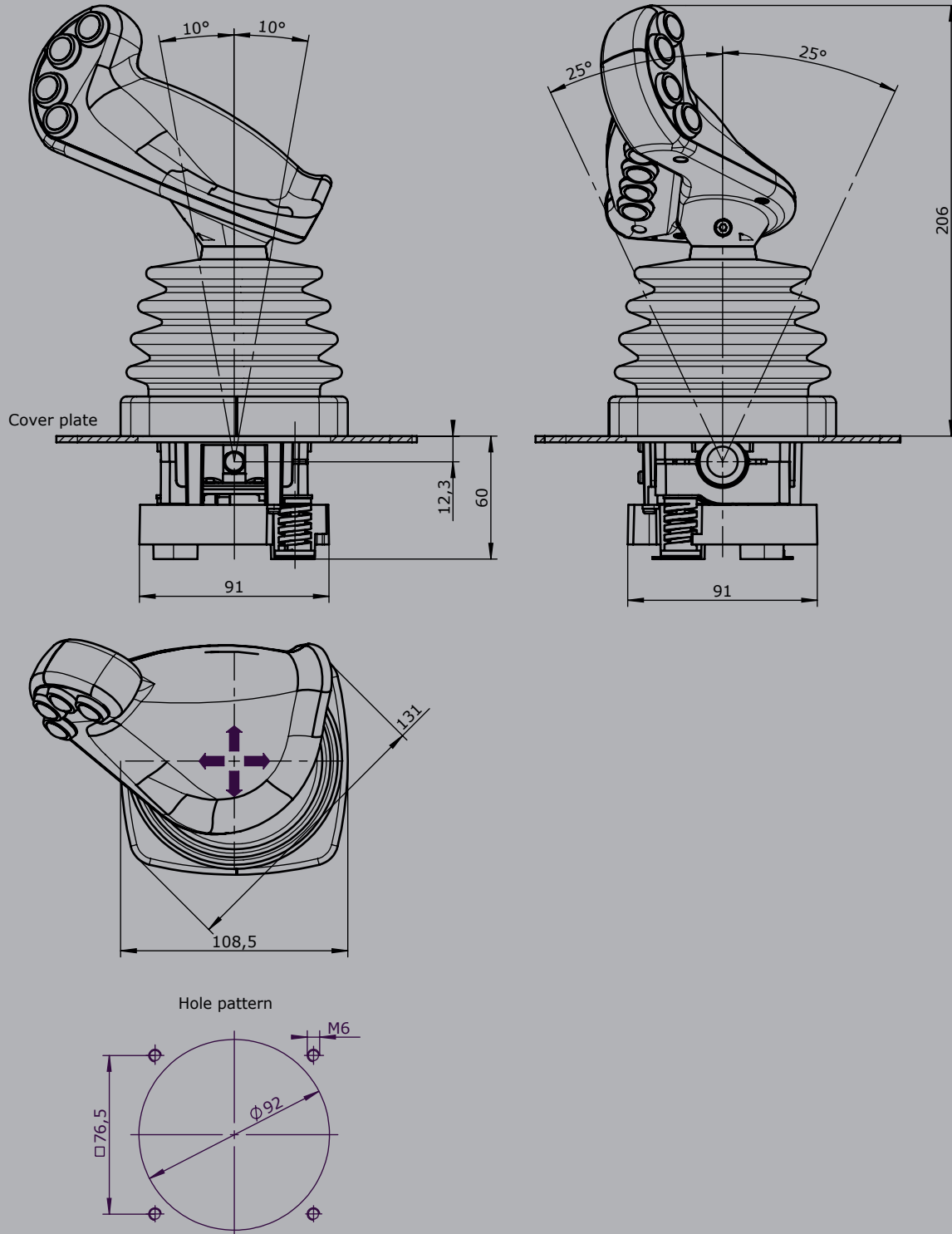
4...12...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring and error signal			
	1 axis		E214 1
	2 axis		2
	3 axis*		3
	4 axis*		4
	5 axis*		5
	6 axis*		6
20...4...20 mA + 2 direction signals + 1 zero position signal (galvanically 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
	<b>Output options</b>		
	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!			

<b>CAN</b>			
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 125)		S
<b>CAN</b>			E312 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!			

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 ( <i>standard plug connectors see page 125</i> )			S
<b>CANopen Safety</b>			E411 1	
- 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				
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
<i>Additional analog outputs on request!</i>				

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 <sup>2</sup> 300 mm long without plug connector			
	2. cable 14 x 0,25 mm <sup>2</sup> 300 mm long without plug connector (optional for grip function)			
	Optional with plug connector ( <i>standard plug connectors see page 125</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



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