

Multi-Axis Controller V28



The V28 is a compact joystick commonly used in electro-hydraulic applications. Long life and high reliability is ensured by the latest contactless hall-technology. With many outputs and grip options the V28 series is hugely customisable.

Technical data

Mechanical life V28	5 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)



		V28	P	Example						T	-GS9	-B10	-E...	-S...	-X
Basic unit															
V28.1	1-axis														
V28	2-axis														
Gate															
P	Cross gate														
Grip / Palm Grip															
	Knob (included in basic unit!)														
D	Knob with push button														
GS9	Hall-twist grip with spring return														
GS9-D	Hall-twist grip with spring return and push button on top														
B ...	Palm Grip B... (see page Palm Grip 154)														
Spring return (included in basic unit!)															
Z	Spring return														
Degree of protection															
B10	Joystick-main board sealed														
B11	Joystick-main board sealed and grip function sealed, grip with drain hole														
For a schematic description of the protection class, see page 121															
Interface (description see on the following page)															
E1xx	Voltage output														
E2xx	Current output														
E3xx	CAN-interface														
E4xx	CANopen Safety interface														
Plug connectors															
S...	Standard plug connectors (see page 120)														
Special model															
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



Voltage output (not stabilized)			
Supply voltage	4,75-5,25 V DC		S
Current carrying capacity	Direction signal 8 mA		
Mounting depth A	35 mm		
Wiring	1. cable 14 x 0,25 mm² 500 mm long without plug connector		
	2. cable 14 x 0,25 mm² (optional for grip function) 500 mm long without plug connector		
	Optional with plug connector (standard plug connectors see page 120)		
0,5...2,5...4,5 V redundant	1 axis	E103 1	
	2 axis	2	
0,5...2,5...4,5 V redundant + 2 direction signals per axis	1 axis	E104 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	35 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 + 2 direction signals + 1 zero position signal (galvanically isolated) per axis			
	1 axis	E112	1
	2 axis		2
	3 axis*		3
0...5...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			
	1 axis	E132	1
	2 axis		2
	3 axis*		3
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			
	1 axis	E136	1
	2 axis		2
	3 axis*		3
	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		
	Single *2		5
	Single with dead zone +/- 3° *2 (standard)		6
	*2 not combinable with output E112X and E132X		

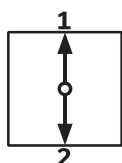
*Axis for grip functions, interface can vary depending upon actuation element!

Voltage output with other value on request!

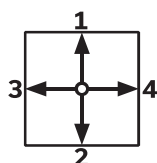
Current output				
Supply voltage	9-32 V DC			
Current carrying capacity	Direction signal 150 mA			
	Zero position signal 500 mA			
Mounting depth A	35 mm			
Wiring	1. cable 14 x 0,25 mm² 500 mm long without plug connector			
	2. cable 14 x 0,25 mm² (optional for grip function) 500 mm long without plug connector			
Optional with plug connector (<i>standard plug connectors see page 120</i>)				S
0...10...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring				
		1 axis	E206	1
		2 axis		2
		3 axis*		3
20...0...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring				
		1 axis	E208	1
		2 axis		2
		3 axis*		3
4...12...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring				
		1 axis	E214	1
		2 axis		2
		3 axis*		3
20...4...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, sensor redundant with error monitoring				
		1 axis	E216	1
		2 axis		2
		3 axis*		3
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!				

Identification of the installation variants with switching directions:

V28.1



V28



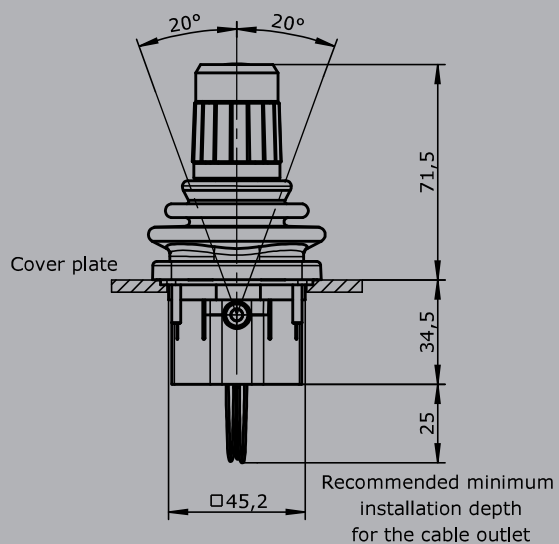
CAN		
Supply voltage	9-32 V DC	
Idle current consumption	120 mA (24 V DC)	
Current carrying capacity	External digital output for LEDs 5 mA - 30 mA (dependent on the number of LEDs)	
Mounting depth A	35 mm	
Protocol	CANopen CiA DS 301 or SAE J1939 (based on)	
Baud rate	20 kBit/s to 1 Mbit/s (standard 250 kBit/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 120</i>)	S
CAN		E314 1
- 4 analog joystick axis		
- 8 digital joystick functions (incl. input for capacitive sensor)		
- 8 LED-Outputs (dimmable optional) for grip function		

CANopen Safety		
Supply voltage	9-32 V DC	
Idle current consumption	120 mA (24 V DC)	
Current carrying capacity	External digital output for LEDs 5 mA - 30 mA (dependent on the number of LEDs)	
Baud rate	20 kBit/s to 1 MBit/s (standard 250 kBit/s)	
Mounting depth	35 mm	
Protocol	CANopen Safety EN50325-5	
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 120</i>)	S
CANopen Safety		E413 1
- 4 analog joystick axis		
- 8 digital joystick functions (incl. input for capacitive sensor)		
- 8 LED-Outputs (dimmable optional) for grip function		

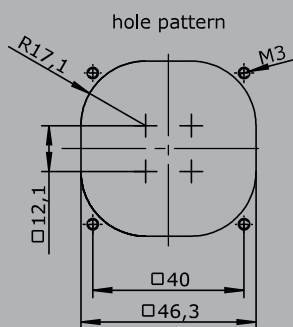
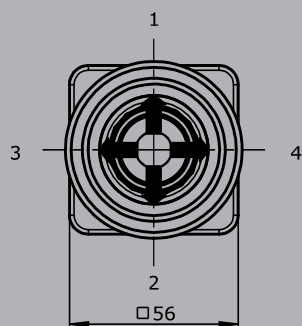
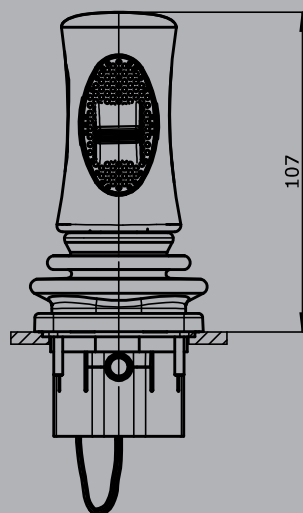
Attachments		
Z01 Mating connector M12 male insert with 2 m cable	20201140	
Z02 Mating connector M12 female insert with 2 m cable	20202298	

Standard
installed from the top

Hall-twist grip GS9

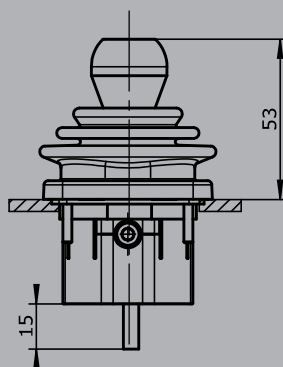


Palm grip B33



knob

installed from below



Recommended minimum
installation depth
for the cable outlet

