Multi-axis controller
V85 / VV85

GESSMANN Industrial Controllers

The multi-axis controller V85/VV85 is available in either single-axis or multi-axis options and is a robust controller used commonly in electro-hydraulic applications.
With many output options including voltage, amperage and switching contacts and many handle options the V85/VV85 series is flexible and customisable.
The V85/VV85 is resistant to oil, maritime conditions e.g. offshore / vessels, UV radiation typically from the sun.

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Technical data

Mechanical life V85	10 million operating cycles
Mechanical life VV85	20 million operating cycles
Supply voltage	See interface
Operation temperature	-40°C to +60°C
Storage temperature	-50°C to +80°C
Degree of protection	IP54 (optional IP67)
Functional safety	PLd (EN ISO 13849) possible

Example

VV85	S8	P	T	- Z80	+ R11	- B	- E...	-S...	- X

Basic unit

V85.1	1-axis
V85	2-axis
	Reinforced version
VV85.1	1-axis
VV85	2-axis

Control-handle extended

	Standard 160mm
S5	-20mm
S8	+20mm
Only available in combination with grip!	

Gate

P	Cross gate
P X	Special gate

Grip / palm grip

	Knob *(included in basic unit!)*
M	Knob with mechanical zero interlock
T	Dead man
H	Signal button
D	Push button
B...	Palm grip B... *(see page palm grip 147)*

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

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VV85	S8	P	T	- Z80	+ R11	- B	- E...	- S...	- X

Axis 1 / Axis 2 *(not applied for V/VV85.1)*

Z	Spring return
R	Friction brake*
	Latching:*
11	1-0-1
22	2-0-2
33	3-0-3
44	4-0-4
55	5-0-5
08	end-position latching SR2
19	1-0-1 + end-position latching SR2
80	end-position latching SR1
91	1-0-1 + end-position latching SR1
88	end-position latching SR1+SR2
99	1-0-1 + end-position latching SR1+SR2

**Maximum deflection angle +/- 25 degree!*

Cover housing

B	Cover housing *(included in basic unit!)*

Interface *(description see on the following pages)*

E0xx	Switching output
E1xx	Voltage output
E2xx	Current output
E3xx	CAN-interface
E4xx	CANOpen safety interface
E5xx	Profibus DP-interface
E6xx	Profinet
E7xx	Profinet safe

Plug connectors

S..	Standard plug connectors *(see page 129)*

Special model

X	Special / customer specified

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Combination possibilities with our handles

Digital output			
Supply voltage	9-32V DC		
Current carrying capacity	Direction signal 150mA		
	Zero position signal 500mA		
Mounting depth A	60mm		
Wiring	1. cable 14x0,25mm² 500mm long without plug connector		
	2. cable 14x0,25mm² (for axis 3-4 or grip function) 500mm long without plug connector		
	Optional with plug connector *(standard plug connectors see page 129)*		S
2 Direction signals + 1 zero position signal (galvanically isolated) per axis			
	1 axis	E001 1	
	2 axis	2	

Voltage output (not stabilized)			
Supply voltage	4,75-5,25V DC		
Current carrying capacity	Direction signal 8mA		
Mounting depth A	60mm		
Wiring	1. cable 14x0,25mm² 500mm long without plug connector		
	2. cable 14x0,25mm² (for axis 3-4 or grip function) 500mm long without plug connector		
	Optional with plug connector *(standard plug connectors see page 129)*		S
0,5...2,5...4,5V 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°	3	
	Dual with dead zone +/- 3°	4	

Voltage output				
Supply voltage	9-32V DC (*11,5-32)			
Current carrying capacity	Direction signal 150mA			
	Zero position signal 500mA			
Mounting depth A	60mm			
Wiring	1. cable 14x0,25mm² 500mm long without plug connector			
	2. cable 14x0,25mm² (for axis 3-4 or grip function) 500mm long without plug connector			
	Optional with plug connector *(standard plug connectors see page 129)*			S
0,5...2,5...4,5V 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		
0...5...10V redundant + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, supply voltage 11,5 - 32V DC				
	1 axis	E132 1		
	2 axis	2		
	3 axis*	3		
	4 axis*	4		
10...0...10V + 2 direction signals + 1 zero position signal (galvanically isolated) per axis, supply voltage 11,5 - 32V DC, sensor redundant with error monitoring and error signal				
	1 axis	E136 1		
	2 axis	2		
	3 axis*	3		
	4 axis*	4		
	Output options			
	Characteristic:			
	Inverse dual *¹		1	
	Dual *¹		2	
	Inverse dual with dead zone +/- 3° *¹		3	
	Dual with dead zone +/- 3° *¹		4	
	¹ not combinable with output E136X			
	Single *²		5	
	Single with dead zone *²		6	
	² not combinable with output E112X and E132X			
	Digital output signals:			
	Output signals standard:			0
	Direction signals and zero position signals 1,5A 24VDC			1

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

Voltage output with other value on request!

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Current output				
Supply voltage	9-32V DC			
Current carrying capacity	Direction signal 150mA			
	Zero position signal 500mA			
Mounting depth A	60mm			
Wiring	1. cable 14x0,25mm² 500mm long without plug connector			
	2. cable 14x0,25mm² (for axis 3-4 or grip function) 500mm long without plug connector			
	Optional with plug connector *(standard plug connectors see page 129)*			S
0...10...20mA + 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		
20...0...20mA + 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		
4...12...20mA + 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		
20...4...20mA + 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		
	Output options			
	Single		5	
	Single with dead zone +/- 3°		6	
	Digital output signals:			
	Output signals standard:			0
	Direction signals and zero position signals 1,5A 24VDC			1

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

Current output with other value on request!

CAN		
Supply voltage	9-32V DC	
Idle current consumption	120mA (24V DC)	
Current carrying capacity	Direction signal 100mA	
	Zero position signal 100mA (potential-free)	
	External digital output for LEDs 5mA - 30mA (dependent on the number of LEDs)	
	Digital switching output (potential-free) 100mA	
Mounting depth A	E3091: 60mm	
	E3091X: 85mm	
	E3101X - E3103X: 85mm	
	E3104X - E3105X: 105mm	
Protocol	CANopen CiA DS 301 or SAE J1939	
Baud rate	20kBit/s to 1Mbit/s (standard 250kBit/s)	
Output value	255...0...255	
Wiring	CAN (IN) cable 300mm with plug connector M12 (male)	
	CAN (OUT) cable 300mm with plug connector M12 (female)	
	External in-/outputs cable 300mm long without plug connector	
	External in-/outputs cable 300mm long without plug connector (additionally from 32 in-/outputs)	
	Optional with plug connector *(standard plug connectors see page 129)*	S
CAN Expansion stage 1		E309 1
- 7 analog joystick axis		
- 16 digital joystick functions		
- Input for capacitive sensor		
With additional external in-/outputs		
- 8 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 8 external digital inputs		2
- 16 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 16* external digital inputs		3
External LED-outputs can be used in the grip for LEDs		
**With the use of capacitive sensor, the external digital inputs reduce by one input!*		
CAN Expansion stage 2		E310 1
- 10 analog joystick axis		
- 16 digital joystick functions		
- 2 inputs for capacitive sensors		
With additional external in-/outputs		
- 8 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 8 external digital inputs		2
- 16 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 16 external digital inputs		3
- 24 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 24 external digital inputs		4
- 32 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 32* external digital inputs		5
External LED-outputs can be used in the grip for LEDs		
**With the use of two capacitive sensors, the external digital inputs reduce by one input!*		
Main-axis with additional digital-/analog outputs separately wired (not via CAN)		
- 2 direction signals + 1 zero position signal (potential-free) per main-axis		3
Additional analog outputs on request!		

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CANopen safety			
Supply voltage	9-32V DC		
Idle current consumption	120mA (24V DC)		
Current carrying capacity	Direction signal 100mA		
	Zero position signal 100mA (potential-free)		
	External digital output for LEDs 5mA - 30mA (dependent on the number of LEDs)		
	Digital switching output (potential-free) 100mA		
Mounting depth A	E4091: 60mm		
	E4091X: 85mm		
	E4101X - E4103X: 85mm		
	E4104X - E4105X: 105mm		
Protocol	CANopen Safety CIA 304		
Baud rate	20kBit/s to 1MBit/s (standard 250kBit/s)		
Output value	255...0...255		
Wiring	CAN (IN) cable 300mm with plug connector M12 (male)		
	CAN (OUT) cable 300mm with plug connector M12 (female)		
	External in-/outputs cable 300mm long without plug connector		
	External in-/outputs cable 300mm long without plug connector (additionally from 32 in-/outputs)		
	Optional with plug connector *(standard plug connectors see page 129)*		S
CANopen safety expansion stage 1		E409 1	
- 7 analog joystick axis			
- 16 digital joystick functions			
- Input for capacitive sensor			
With additional external in-/outputs			
- 8 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 8 external digital inputs		2	
- 16 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 16* external digital inputs		3	
**external LED-outputs can be used in the grip for LEDs*			
**With the use of capacitive sensor, the external digital inputs reduce by one input!*			
CANopen safety expansion stage 2		E410 1	
- 10 analog joystick axis			
- 16 digital joystick functions			
- 2 inputs for capacitive sensors			
With additional external in-/outputs			
- 8 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 8 external digital inputs		2	
- 16 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 16 external digital inputs		3	
- 24 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 24 external digital inputs		4	
- 32 external LED-outputs (dimmable), 1 switching output (potential-free, 100mA), 32* external digital inputs		5	
External LED-outputs can be used in the grip for LEDs			
**With the use of two capacitive sensors, the external digital inputs reduce by one input!*			
Main-axis with additional digital-/analog outputs separately wired (not via CAN)			
- 2 direction signals + 1 zero position signal (potential-free) per main-axis		3	
Additional analog outputs on request!			

Profibus DP			
Supply voltage	18-30V DC		
Baud rate	to 12MBit/s		
Output value	0...128...255		
Mounting depth A	105mm		
Wiring	Profibus, cable 100mm with plug connector D-Sub 9		
	Supply voltage (if applicable contact wiring) cable 12x0,25mm² 300mm long without plug connector		
	External in-/outputs, cable 18x0,25mm² 300mm long without plug connector		
	External in-/outputs (additional at 16E/16A) cable 18x0,25mm² 300mm long without plug connector		
	Optional with plug connector *(standard plug connectors see page 129)*		S
Profibus DP		E501 1	
- 4 analog joystick axis			
- 16 digital joystick functions			
- Input for capacitive sensor			
With additional external in-/outputs			
- 8 external LED-outputs, 8 external digital inputs		2	
- 16 external LED-outputs, 16 external digital inputs		3	
**External LED-outputs can be used in the grip for LEDs*			
Main-axis with additional contact equipment separately wired (not via profibus)			
- 2 direction contacts + 1 zero position contact (not potential-free) per main-axis		1	
- 1 zero position contact (potential-free) per main-axis		2	

Profinet			
Supply voltage	18-30V DC		
Baud rate	to 100MBit/s		
Output value	0...512...1023		
Mounting depth A	85mm		
Wiring	Profinet (1), cable 300mm with M12 plug connector (female)		
	Profinet (2), cable 300mm with M12 plug connector (female)		
	Supply voltage (if applicable contact wiring) cable 12x0,25mm² 300mm long without plug connector		
	External in-/outputs, cable 18x0,25mm² 300mm long without plug connector		
	External in-/outputs (additional at 16E/16A) cable 18x0,25mm² 300mm long without plug connector		
	Optional with plug connector *(standard plug connectors see page 129)*		S
Profinet		E601 1	
- 4 analog joystick axis			
- 16 digital joystick functions			
- Input for capacitive sensor			
With with additional external in-/outputs			
- 8 external LED-outputs, 8 external digital inputs		2	
- 16 external LED-outputs, 16 external digital inputs		3	
**External LED-outputs can be used in the grip for LEDs*			
Main-axis with additional signals separately wired (not via profinet)			
- 2 direction signals + zero position signal (potential-free) per main-axis		3	

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Profinet safe			
Supply voltage	18-30V DC		
Baud rate	to 100MBit/s		
Output value	0...512...1023		
Mounting depth A	85mm		
Wiring	Profinet (IN), cable 300mm with M12 plug connector (female)		
	Profinet (OUT), cable 300mm with M12 plug connector (female)		
	Supply voltage (if applicable contact wiring) cable 12x0,25mm² 300mm long without plug connector		
	External in-/outputs, cable 18x0,25mm² 300mm long without plug connector		
	External in-/outputs (additional at 16E/16A) cable 18x0,25mm² 300mm long without plug connector		
	Optional with plug connector *(standard plug connectors see page 129)*		S
- 4 analog joystick axis		E701 1	
- 16 digital joystick functions			
- Input for capacitive sensor			
With additional external in-/outputs			
- 8 external LED-outputs, 8 external digital inputs		2	
- 16 external LED-outputs, 16 external digital inputs		3	
**External LED-outputs can be used in the grip for LEDs*			
Main-axis with additional signals separately wired (not via profinet safe)			
- 2 direction signals + zero position signal (potential-free) per main-axis			3

Other outputs			
Voltage output for PVG32 0,25...0,5...0,75Us, power supply 9-32V DC			
Wiring:	1. cable 14x0,25mm² 300mm long without plug connector		
	2. cable 14x0,25mm² 300mm long without plug connector (for axis 3+4 or grip function)		
	Optional with plug connector *(standard plug connectors see page 129)*		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 contacts per main-axis			4
8 Bit Gray-Code with direction signals per main-axis, supply voltage 9-36V DC			
Wiring:	1. cable 37x0,14mm² 300mm long without plug connector (axis 1+2)		
	2. cable 37x0,14mm² 300mm long without plug connector (axis 3+4)		
	Optional with plug connector *(standard plug connectors see page 129)*		S
	1 axis	E903 1	
	2 axis	2	
	3 axis	3	
	4 axis	4	

8 Bit Binär-Code with direction signals per main-axis, supply voltage 9-36V DC				
Wiring:	1. cable 37x0,14mm² 300mm long without plug connector (axis 1+2)			
	2. cable 37x0,14mm² 300mm long without plug connector (axis 3+4)			
	Optional with plug connector *(standard plug connectors see page 129)*			S
		1 axis	E904 1	
		2 axis	2	
		3 axis	3	
		4 axis	4	

Attachments

Z01	Mating connector (CAN) M12 (male insert) with 2m cable	20201140	
Z02	Mating connector (CAN) M12 (female contact) with 2m cable	20202298	
Z03	Mating connector (Profibus) straight	22201440	
Z04	Mating connector (Profibus) 90° angled	22201741	
Z05	Mating connector (Profinet) M12 (male insert) with 2m cable	5300000222	

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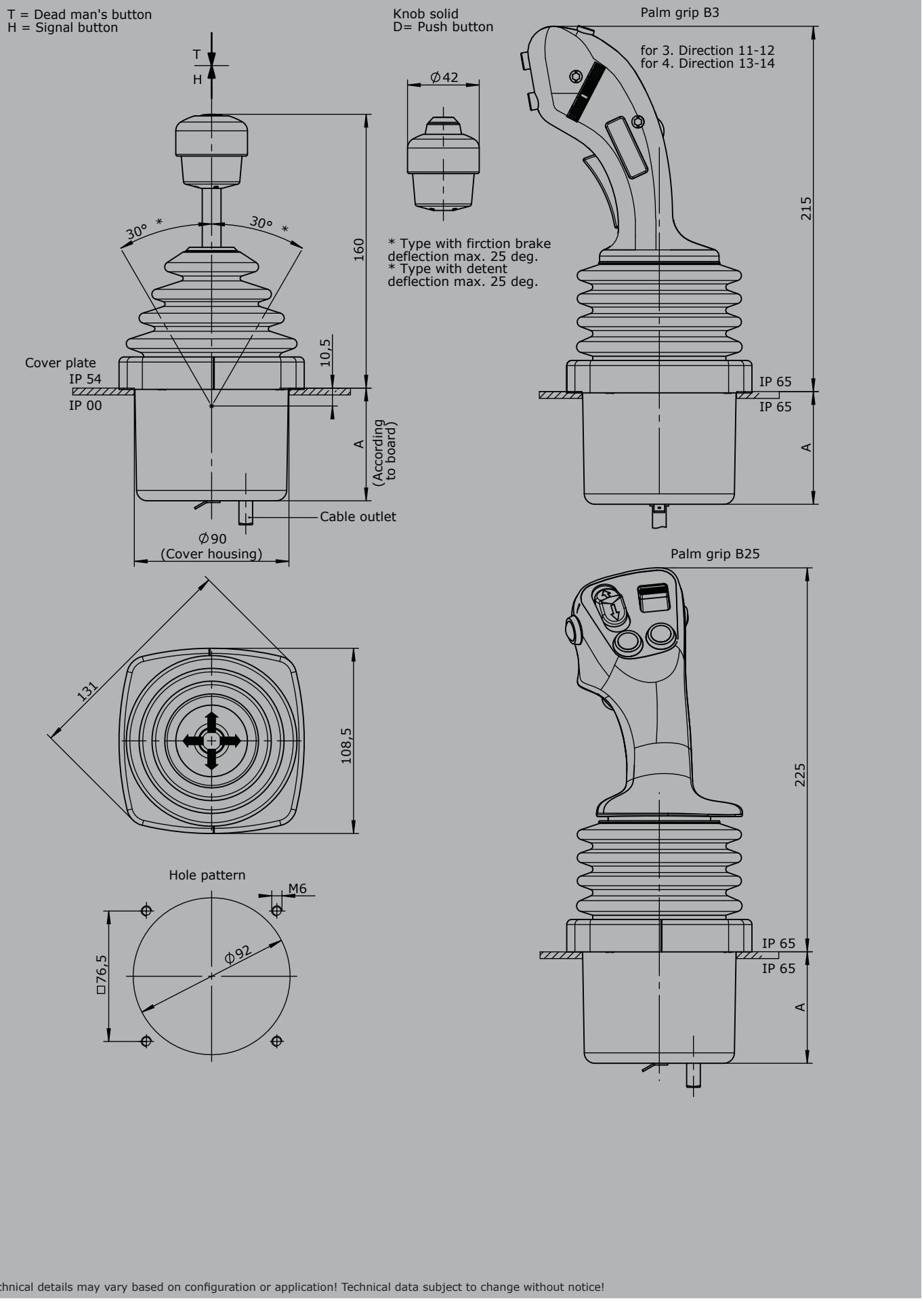

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