

Control systems CMCA



Control systems CMCA

Key features

At a glance

The control solution CMCA is suitable for Festo handling systems.

It is available in two versions:

- Mounting plate
- Mounting plate in the control cabinet housing

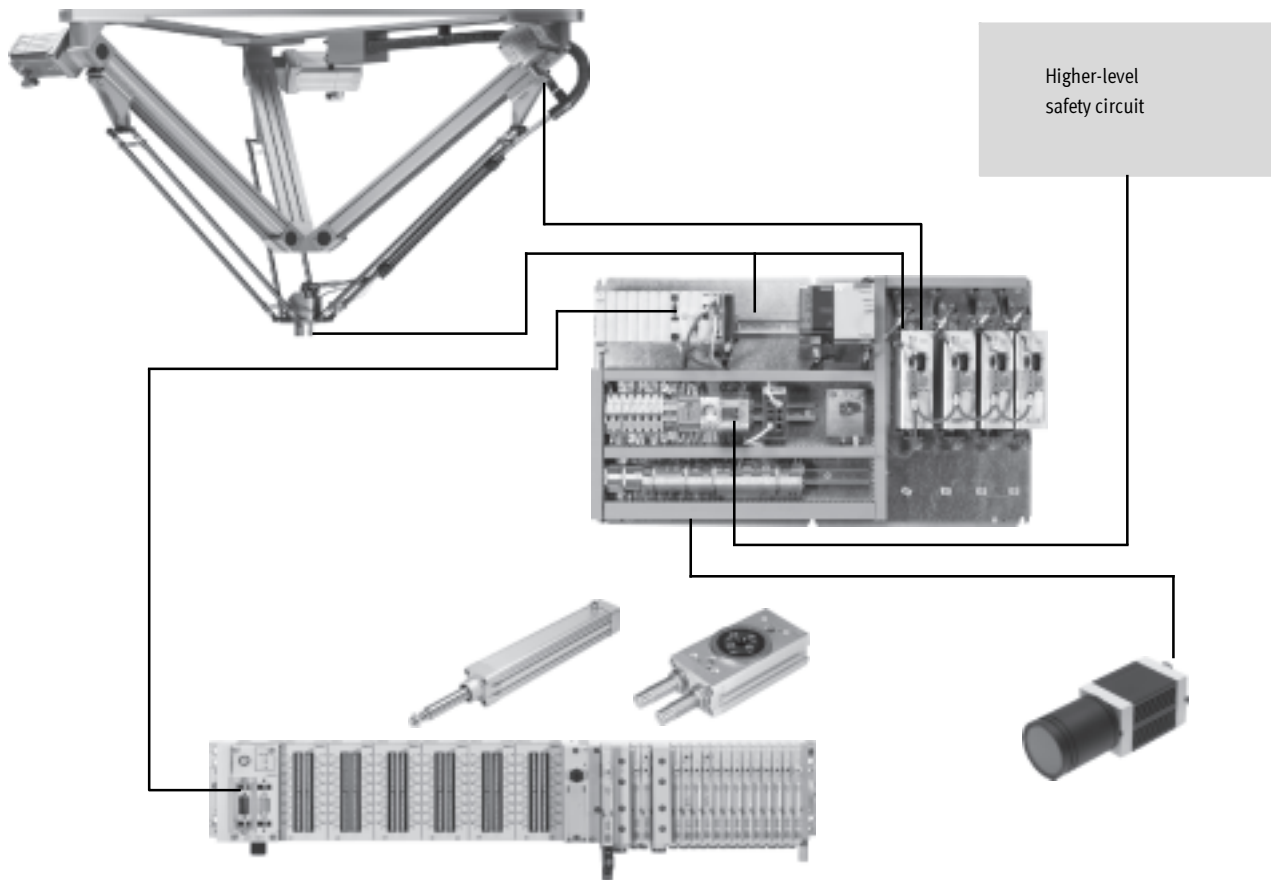
The control solution includes the multi-axis controller CMXR and the motor controller CMMP required for activation. There is also an integrated safety circuit, which together with the teach pendant CDSA represents the basic functionality.

The version with the control cabinet housing also features control elements and fans in the door. The control solution CMCA is pre-programmed and already tested together with the relevant parallel kinematic robot.

Additional features:

- Terminals for control cabinet lighting
- Plug socket in the control cabinet for a PC
- Terminals for a camera
- Terminals for two proximity sensors per axis

System overview



Connection of the Festo compact vision system

- A 24 V terminal is provided for the power supply
- Communication takes place via the integrated network switch
- Lighting connection: 230 V, 2 A

Connection of kinematic systems or gantries

- Motors are connected directly to the motor controller CMMP-AS
- Terminals for two proximity sensors each are provided for axes 1 to 4

Connection of peripheral equipment or grippers

- It is recommended to only connect time-critical inputs/outputs to the peripheral modules
- Link all other inputs/outputs decentrally via CANopen

Additional emergency stop position

- An additional emergency stop position can be connected directly at the control cabinet

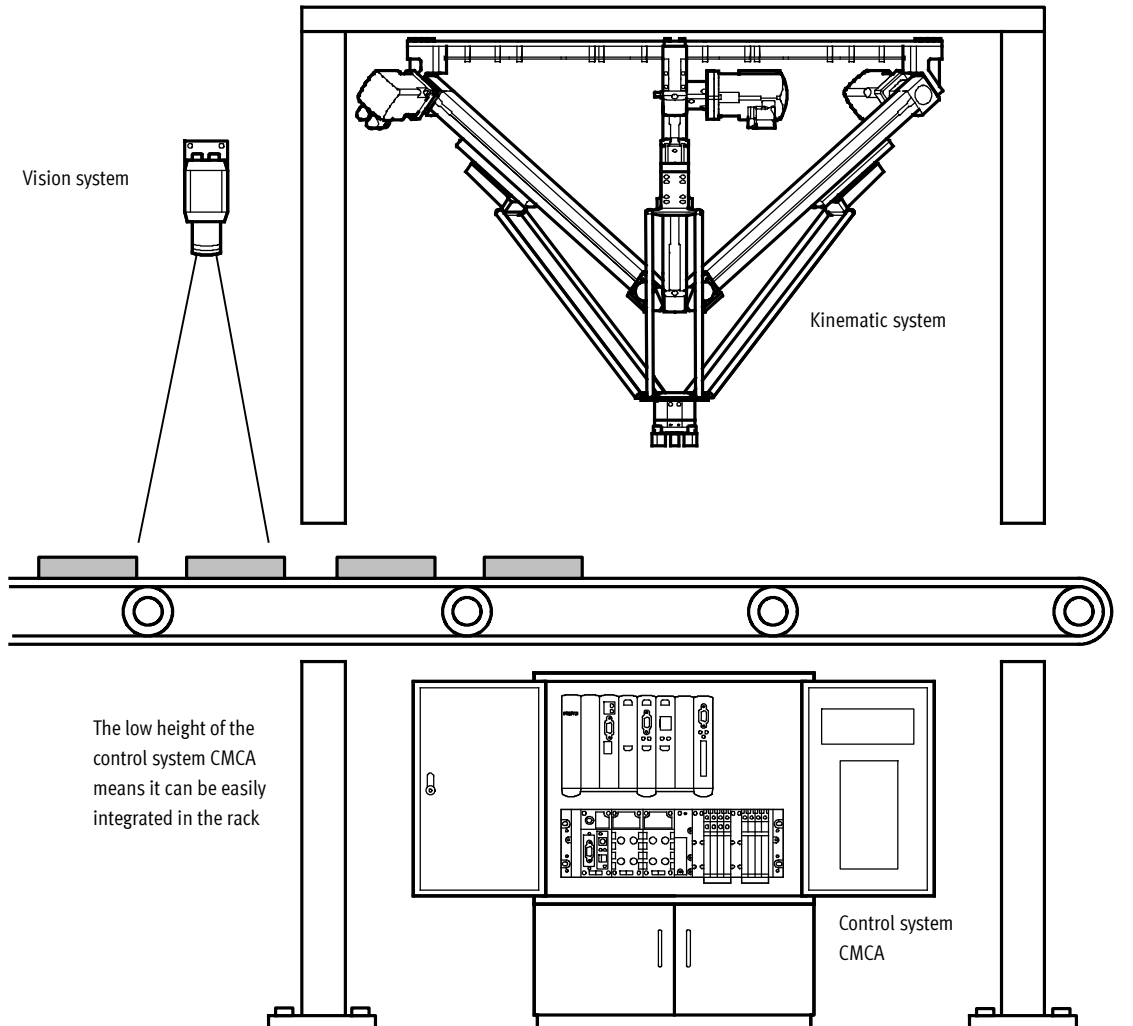
Interface to higher-level safety circuit

2 channels for safety door contacts	For indicating the status of the safety doors in manual mode
2 channels for external emergency stop	For triggering an emergency stop by means of a higher-level safety circuit
2 floating contacts for emergency stop	For indicating an emergency stop at a higher-level safety circuit
2 inputs for operating mode selection	The operating mode can be selected externally instead of using the integrated key actuator

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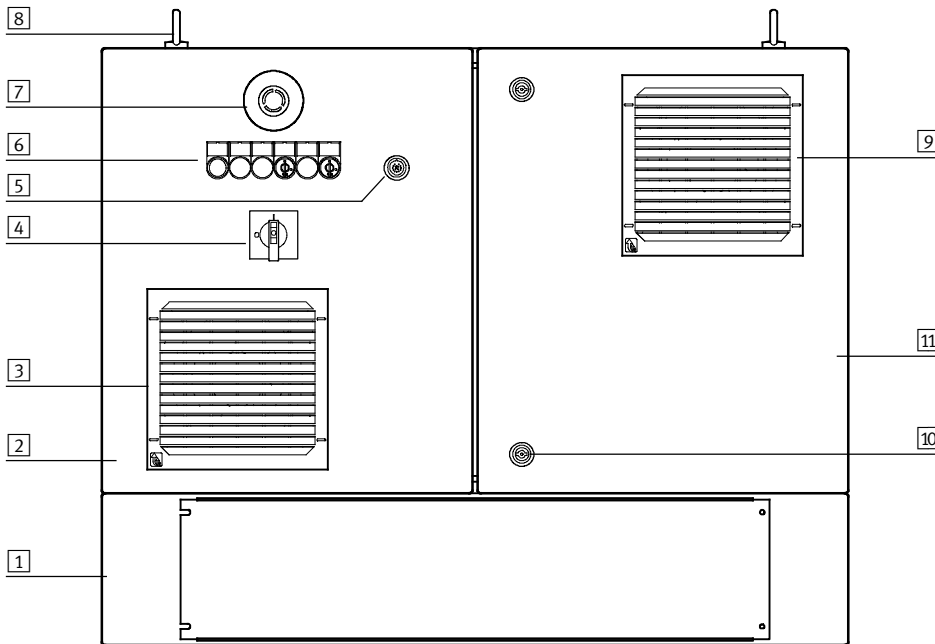
Sample application



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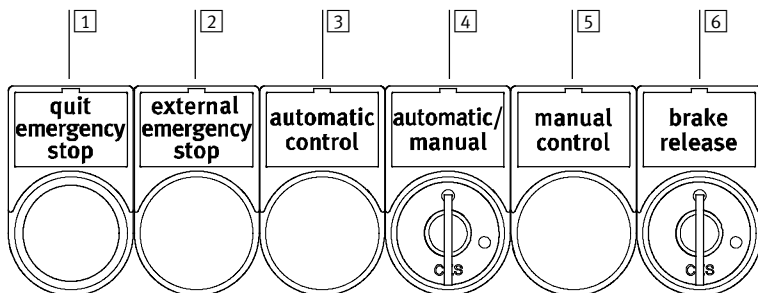
Key features


Control cabinet



- 1 Base (option)
- 2 Left control cabinet door
- 3 Cover for control cabinet fan
- 4 Power switch
- 5 Connection for teach pendant CDSA
- 6 Control and signal elements
- 7 Emergency stop switch
- 8 Transport lugs
- 9 Cover for outlet filter
- 10 Lock for control cabinet doors
- 11 Right control cabinet door

Control and signal elements



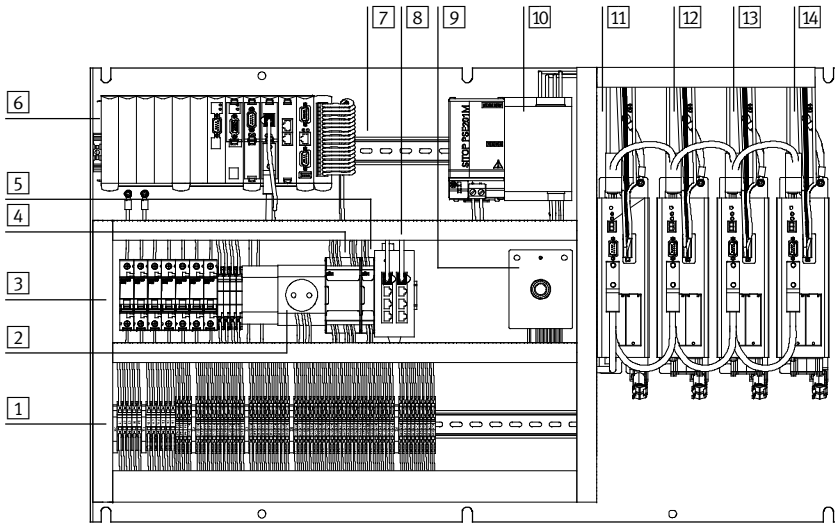
 **Note**
The labels for marking the control elements in German are also included in the control cabinet.

- 1 "quit emergency stop" illuminated push-button: confirms disengagement of the emergency stop circuit
- 2 "external emergency stop" indicator light: external emergency stop circuit triggered
- 3 "automatic control" indicator light: automatic mode active
- 4 "automatic/manual" key actuator: switches between automatic and manual mode
- 5 "manual control" indicator light: manual mode active
- 6 "brake release" key actuator: releases the motor brakes (only possible in manual mode and in combination with enabling button on the teach pendant)


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Mounting plate (the actual controller may differ from the one shown, depending on the equipment)

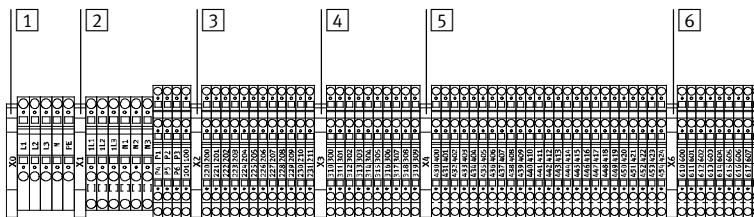


- 1 Terminal strips X0 ... X6
- 2 Protective contact socket type F for PC (230 V AC, max. 10 A)
- 3 Fuses F1 ... F20
- 4 Safety circuit control system
- 5 Extension for safety circuit control system
- 6 Multi-axis control system
- 7 Additional peripheral modules possible
- 8 Ethernet switch
- 9 Connection for CDSA (on the left door on the control cabinet version)
- 10 24 V DC power supply unit
- 11 Motor controller for axis 1
- 12 Motor controller for axis 2
- 13 Motor controller for axis 3 (option)
- 14 Motor controller for axis 4 (option)

 Note

Up to 6 other peripheral modules can be connected to the multi-axis controller CMXR (→ Internet: cmxr). These can be connected to the internal power supply. If the additional power requirement exceeds the value of 1.5 A, these peripheral modules must be supplied with 24 V externally. The plug connectors on the additional cards must be used as terminals.

Overview of interfaces



- 1 X0: Feed upstream of power switch
- 2 X1: Feed downstream of power switch
- 3 X2: 24 V DC control circuit
- 4 X3: Emergency stop
- 5 X4: External emergency stop
- 6 X6: Control and signal elements

Control systems CMCA

Type codes

		CMCA	-	K1	-	C2	-	A4	-	CC	-	S1	-	DE
Type		CMCA												
	Control cabinet													
Kinematic system														
K1	For parallel kinematic robot EXPT													
K2	For planar surface gantry EXCH													
K3	For linear gantry EXCT													
Multi-axis controller														
C1	Multi-axis controller CMXR-C1													
C2	Multi-axis controller CMXR-C2, with integrated PLC													
Motor controller														
A1	2x CMMP-AS-C5-3A for 2 main axes													
A2	2x CMMP-AS-C5-3A for 2 main axes 1x CMMP-AS-C2-3A for 1 additional axis													
A3	2x CMMP-AS-C5-3A for 2 main axes 2x CMMP-AS-C2-3A for 2 additional axes													
A4	3x CMMP-AS-C5-3A for 3 main axes													
A5	3x CMMP-AS-C5-3A for 3 main axes 1x CMMP-AS-C2-3A for 1 additional axis													
A6	2x CMMP-AS-C5-11A for 2 main axes													
A7	2x CMMP-AS-C5-11A for 2 main axes 1x CMMP-AS-C2-3A for 1 additional axis													
A8	2x CMMP-AS-C5-11A for 2 main axes 2x CMMP-AS-C2-3A for 2 additional axes													
Control system														
C	Mounting plate													
CC	Control cabinet without base													
CS	Control cabinet with base													
Safety technology														
S1	Integrated safety switching device													
S2	Integrated safety switching device with power failure detection													
Manual language														
DE	German													
EN	English													
ES	Spanish													
FR	French													
IT	Italian													
RU	Russian													
SV	Swedish													
ZH	Chinese													

Control systems CMCA

Technical data

FESTO

Control systems CMCA



General technical data		
Mains voltage	[VAC]	230/400
Mains frequency	[Hz]	50 ... 60
Fuse protection on mains side	[A]	Max. 20 (slow-blow)
Nominal operating voltage phases		3-phase
Electrical connection		Spring-loaded terminal
Product weight		
CMCA-...-C	[kg]	41
CMCA-...-C ¹⁾	[kg]	85
CMCA-...-CC	[kg]	79
CMCA-...-CC ¹⁾	[kg]	125
CMCA-...-CS	[kg]	89
CMCA-...-CS ¹⁾	[kg]	142

1) With packing case and accessories

Operating and environmental conditions		
Type	CMCA-...-C	CMCA-...-CC/-CS
Ambient temperature	[°C]	+5 ... +40
Storage temperature	[°C]	-20 ... +60
Protection class	IP20	IP54
CE marking (see declaration of conformity)	-	To EU EMC Directive ¹⁾
	-	To EU Low Voltage Directive
Relative air humidity	[%]	10 ... 95 (non-condensing)
Note on materials	Contains PWIS (paint-wetting impairment substances)	
	RoHS-compliant	

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com → Support → User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

Safety characteristics	
Conforms to standard	EN ISO 13849-1
Safety function	Safe Stop 1 (SS1)
Performance Level (PL)	Safe Stop 1 (SS1)/category 3, Performance Level d

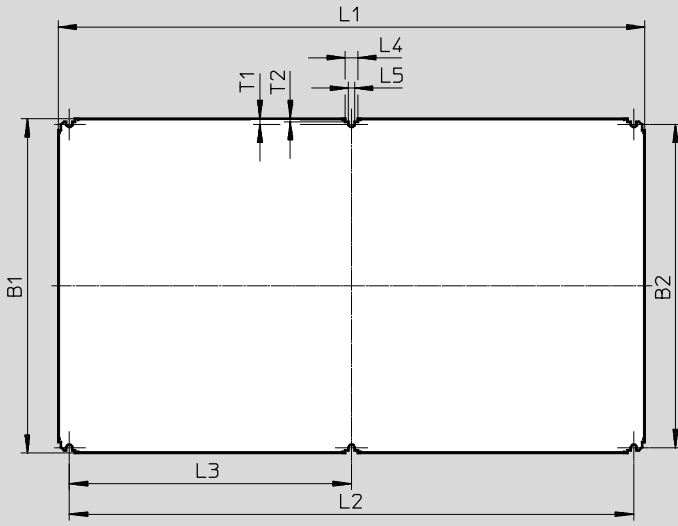
Control systems CMCA


Technical data

Dimensions

Download CAD data → www.festo.com

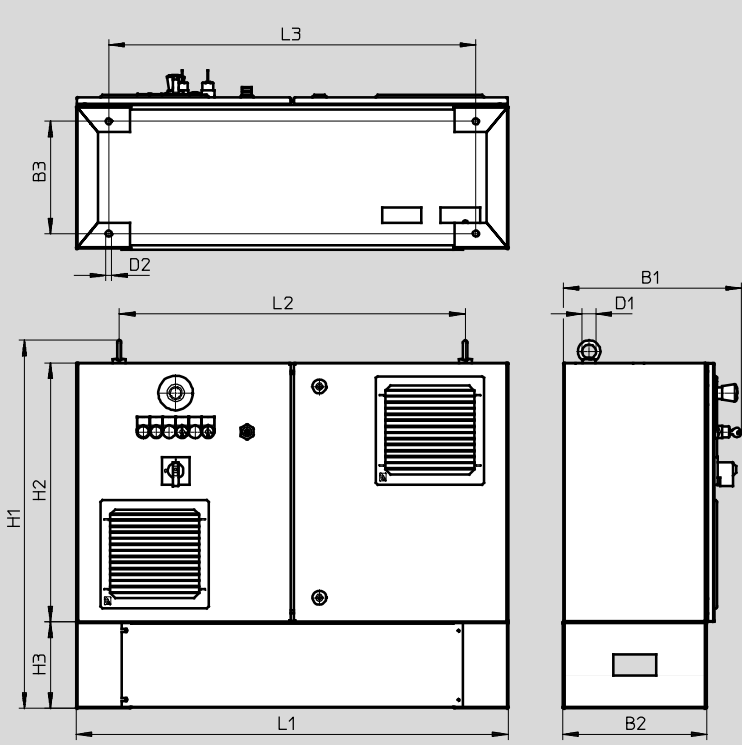
CMCA-...-C – Mounting plate



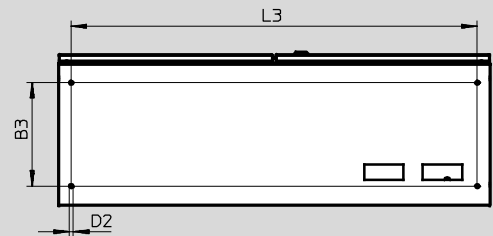
 Note
The mounting plate must be mounted on a vertical and sufficiently stable surface at the 6 mounting points.


Type	B1	B2	L1	L2	L3	L4	L5	T1	T2
CMCA-...-C	548	518	962	925	462.5	20	10	15	4

CMCA-...-CC/-CS – Control cabinet



Base not shown



 Note
Prerequisites for mounting:

- In a vertical position on a wall bracket with sufficient load-bearing capacity
- In a vertical position on horizontal cross braces in a rack with sufficient load-bearing capacity
- With a free space below the control cabinet of at least 200 mm for the cable throughfeed

Type	B1	B2	B3	D1 ∅	D2 ∅	H1	H2	H3	L1	L2	L3
With base	412	334	260	32	14	852	600	200	1,000	801	850
Without base	412	–	239	32	9	652	600	–	1,000	801	940

Control systems CMCA

Ordering data – Modular products

Ordering table		Condi- tions	Code	Enter code
[M] Module No.	576335			
Type	Control cabinet		CMCA	CMCA
Kinematic system	For parallel kinematic robot EXPT		-K1	
	For planar surface gantry EXCH		-K2	
	For linear gantry EXCT		-K3	
Multi-axis controller	Multi-axis controller CMXR-C1		-C1	
	Multi-axis controller CMXR-C2, with integrated PLC		-C2	
Motor controller	2x CMMP-AS-C5-3A for 2 main axes		-A1	
	2x CMMP-AS-C5-3A for 2 main axes		-A2	
	1x CMMP-AS-C2-3A for 1 additional axis			
	2x CMMP-AS-C5-3A for 2 main axes		-A3	
	2x CMMP-AS-C2-3A for 2 additional axes			
	3x CMMP-AS-C5-3A for 3 main axes		-A4	
	3x CMMP-AS-C5-3A for 3 main axes		-A5	
	1x CMMP-AS-C2-3A for 1 additional axis			
	2x CMMP-AS-C5-11A for 2 main axes		-A6	
	2x CMMP-AS-C5-11A for 2 main axes		-A7	
	1x CMMP-AS-C2-3A for 1 additional axis			
	2x CMMP-AS-C5-11A for 2 main axes		-A8	
2x CMMP-AS-C2-3A for 2 additional axes				
Control system	Mounting plate		-C	
	Control cabinet without base		-CC	
	Control cabinet with base		-CS	
Safety technology	Integrated safety switching device		-S1	
	Integrated safety switching device with power failure detection		-S2	
Manual language	German		-DE	
	English		-EN	
	Spanish		-ES	
	French		-FR	
	Italian		-IT	
	Russian		-RU	
	Swedish		-SV	
Chinese		-ZH		

1 **K1** Not with motor controller variant A1, A2, A3, A6, A7, A8

2 **K2** Not with motor controller variant A4, A5

3 **K3** Not with motor controller variant A3, A4, A5, A6, A7, A8

Transfer order code

	CMCA	-		-		-		-		-	
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