

## Motor controllers CMMP-AS, for servo motors

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## Motor controllers CMMP-AS, for servo motors

Key features

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### Hardware

- Positioning controller with setpoint specifications for position, speed and torque
- Point-to-point positioning with and without overloading
- Control of linear motors
- Multiple actuation possible
- Automatic motor identification
- No additional controller (PLC) required for positioning tasks. All necessary functions are integrated
- Integrated braking resistor
- Integrated mains filter
- Interfaces:
  - Integrated:
    - Analogue
    - I/O interface
    - CANopen
  - Optional:
    - Profibus DP
    - DeviceNet
    - Sercos II

**CANopen**

**PROFIBUS**

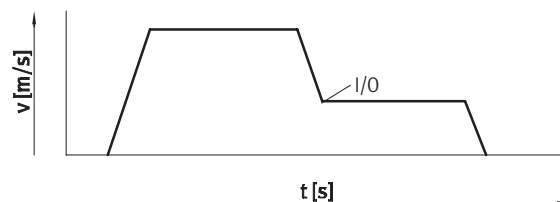
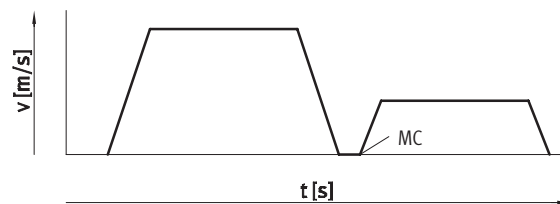
**DeviceNet**

### Software/firmware

- Adjustable current reduction via software
- The Active Power Factor Correction (PFC) feature of the CMMP-AS-...-3A keeps the motor voltage constant regardless of the power supply
- CANopen protocol as per DS301 with application profile DSP402 and numerous application-specific additional functions
- Positioning profile from Festo FHPP
- 255 position sets, selectable via I/O signals or fieldbus
- Analogue input with 16 bit resolution
- One of the digital inputs is set up as a high-speed input, response time < 100 µs

### Path program

- Linking of any number of position sets into a path program
- Step criteria for the path program possible via digital inputs, for example
  - MC – motion complete
  - I/O – digital inputs



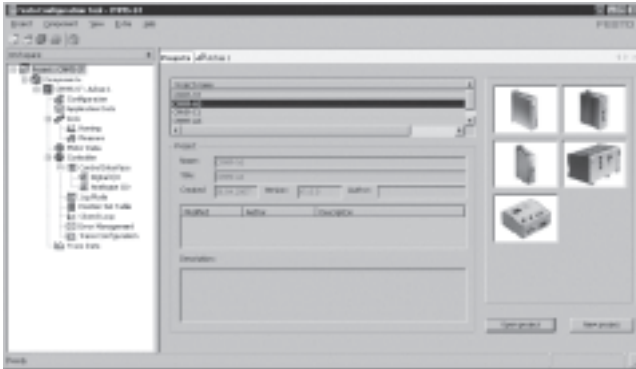
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### FCT software – Festo Configuration Tool

Software platform for electric drives from Festo



- All drives in a system can be managed and archived in a common project
- Project and data management for all supported device types
- Simple to use thanks to graphically-supported parameter entry
- Universal mode of operation for all drives
- Working offline at your desk or online at the machine

### FHPP – Festo Handling and Positioning Profile

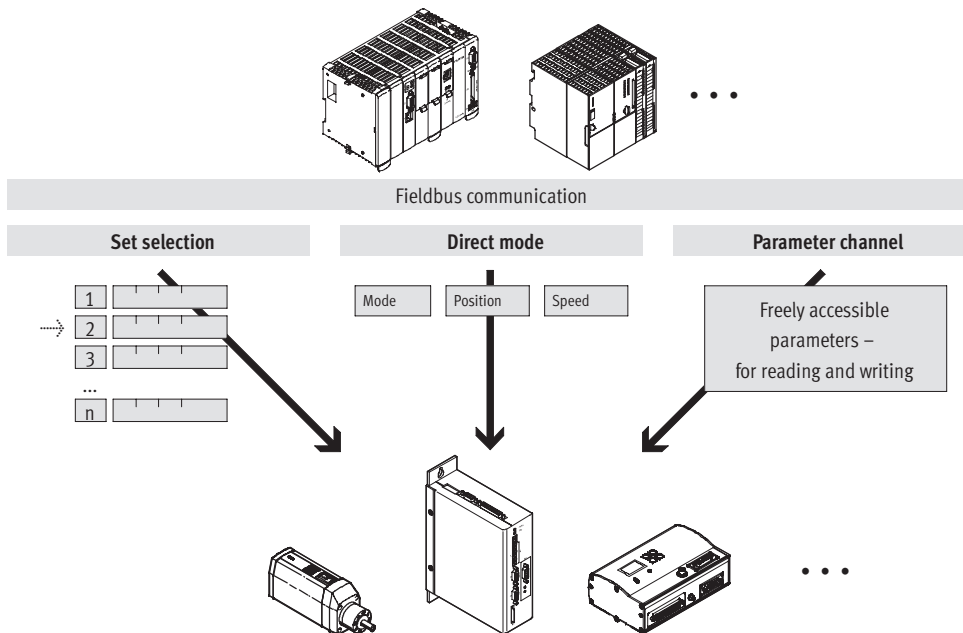
Optimised data profile

Festo has developed an optimised data profile, the “Festo Handling and Positioning Profile (FHPP)”, that is tailored to handling and positioning applications.

The FHPP data profile permits the actuation of Festo motor controllers, using a fieldbus interface, via standardised control and status bytes.

The following are defined, among others:

- Operating modes
- I/O data structure
- Parameter objects
- Sequence control



## Motor controllers CMMP-AS, for servo motors

Type codes

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|                        |                              | CMMP | – | AS | – | C5 | – | 11A | – | P3 |
|------------------------|------------------------------|------|---|----|---|----|---|-----|---|----|
| <b>Type</b>            |                              |      |   |    |   |    |   |     |   |    |
| CMMP                   | Motor controller, premium    |      |   |    |   |    |   |     |   |    |
| <b>Motor type</b>      |                              |      |   |    |   |    |   |     |   |    |
| AS                     | Servo motor, AC synchronous  |      |   |    |   |    |   |     |   |    |
| <b>Motor current</b>   |                              |      |   |    |   |    |   |     |   |    |
| C2                     | Nominal current: 2.5 A       |      |   |    |   |    |   |     |   |    |
| C5                     | Nominal current: 5 A         |      |   |    |   |    |   |     |   |    |
| C10                    | Nominal current: 10 A        |      |   |    |   |    |   |     |   |    |
| <b>Nominal voltage</b> |                              |      |   |    |   |    |   |     |   |    |
| 3A                     | Voltage: 1x 100 ... 230 V AC |      |   |    |   |    |   |     |   |    |
| 11A                    | Voltage: 3x 230 ... 480 V AC |      |   |    |   |    |   |     |   |    |
| <b>Phases</b>          |                              |      |   |    |   |    |   |     |   |    |
| P3                     | Three-phase                  |      |   |    |   |    |   |     |   |    |

# Motor controllers CMMP-AS, for servo motors

Technical data

Fieldbus interfaces

**CANopen**

**PROFIBUS**

**DeviceNet**



| General technical data                                       |                                                                         |       |           |            |
|--------------------------------------------------------------|-------------------------------------------------------------------------|-------|-----------|------------|
| Type CMMP-AS-                                                | C2-3A                                                                   | C5-3A | C5-11A-P3 | C10-11A-P3 |
| Type of mounting                                             | Screwed to a mounting plate                                             |       |           |            |
| Output frequency [Hz]                                        | 0 ... 1,000                                                             |       |           |            |
| Display                                                      | 7-segment display                                                       |       |           |            |
| Parameterisation interface                                   | RS232 (9,600 ... 115,000 bits/s)                                        |       |           |            |
| Encoder interface input                                      | As speed/position specification for the slave drive in synchronous mode |       |           |            |
|                                                              | Encoder signal setpoint speed                                           |       |           |            |
|                                                              | EnDat V2.2                                                              |       |           |            |
|                                                              | RS422                                                                   |       |           |            |
| Encoder interface output                                     | Actual value feedback via encoder signals in speed control mode         |       |           |            |
|                                                              | Setpoint specification for downstream slave drive                       |       |           |            |
|                                                              | Resolution 16 384 ppr                                                   |       |           |            |
| Brake resistor, integrated [Ω]                               | 165                                                                     | 110   | 68        |            |
| Pulse power of braking resistor [kVA]                        | 1.1                                                                     | 1.6   | 8.5       |            |
| Operating range of analogue outputs [V]                      | ±10                                                                     |       |           |            |
| Operating range of analogue inputs [V]                       | ±10                                                                     |       |           |            |
| Number of analogue outputs                                   | 2                                                                       |       |           |            |
| Number of analogue inputs                                    | 3                                                                       |       |           |            |
| Resolution of analogue outputs                               | 9-bit                                                                   |       |           |            |
| Characteristics of logic inputs                              | Freely configurable                                                     |       |           |            |
| Characteristics of analogue outputs                          | Short circuit-proof                                                     |       |           |            |
| Characteristics of analogue inputs                           | Differential inputs                                                     |       |           |            |
|                                                              | Configurable for speed                                                  |       |           |            |
|                                                              | Configurable for current                                                |       |           |            |
| Characteristics of digital logic outputs                     | Freely configurable in some cases                                       |       |           |            |
| Mains filter                                                 | Integrated                                                              |       |           |            |
| Max. length of motor cable without external mains filter [m] | 25                                                                      |       |           |            |
| Product weight [g]                                           | 2,000                                                                   | 2,100 | 3,700     |            |

| Technical data – Fieldbus interface      |                       |               |                          |           |
|------------------------------------------|-----------------------|---------------|--------------------------|-----------|
| Interfaces                               | I/O                   | CANopen       | Profibus DP              | DeviceNet |
| Operating range of logic inputs [V]      | 8 ... 30              | –             |                          |           |
| Number of digital logic inputs           | 10                    | –             |                          |           |
| Number of digital logic outputs          | 5                     | –             |                          |           |
| Process coupling                         | For 255 position sets | –             |                          |           |
| Communication profile                    | –                     | DS301, FHPP   | DP-V0 / FHPP             | FHPP      |
|                                          | –                     | DS301, DSP402 | Step7 functional modules |           |
| Max. fieldbus transmission rate [Mbit/s] | –                     | 1             | 12                       | 0.5       |

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| Electrical data                       |        |                         |                         |                   |
|---------------------------------------|--------|-------------------------|-------------------------|-------------------|
| Type CMMP-AS-                         |        | C2-3A                   | C5-3A                   | C5-11A-P3         |
| General                               |        |                         |                         |                   |
| Nominal voltage phases                |        | 1                       |                         | 3                 |
| Nominal current                       | [A]    | 2.5                     | 5                       | 5                 |
| Peak current                          | [A]    | 5                       | 10                      | 15                |
| Max. peak current duration            | [s]    | 5                       |                         | 3                 |
| Max. intermediate circuit voltage     | [V DC] | 380                     |                         | 560               |
| Mains frequency                       | [Hz]   | 50 ... 60               |                         |                   |
| Load supply                           |        |                         |                         |                   |
| Input voltage range                   | [V AC] | 100 ... 230             |                         | 3x 230 ... 480    |
| Max. nominal input current            | [A]    | 2.5                     | 5                       | 5                 |
| Rated output                          | [VA]   | 500                     | 1,000                   | 3,000             |
| Peak output                           | [VA]   | 1,000                   | 2,000                   | 6,000             |
| Logic supply                          |        |                         |                         |                   |
| Nominal voltage                       | [V DC] | 24 ±20%                 |                         |                   |
| Nominal current                       | [A]    | 0.55/2.55 <sup>1)</sup> | 0.65/2.65 <sup>1)</sup> | 1/3 <sup>1)</sup> |
| Max. current of digital logic outputs | [mA]   | 100                     |                         |                   |

1) Max. current with brake

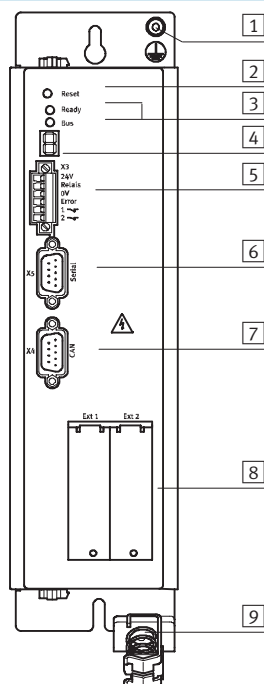
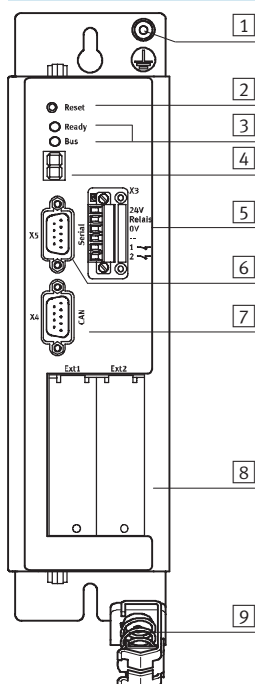
| Operating and environmental conditions  |                               |
|-----------------------------------------|-------------------------------|
| Digital logic outputs                   | Electrically separated        |
| Logic inputs                            | Electrically separated        |
| Protection class                        | IP20                          |
| Ambient temperature                     | [°C] 0 ... +50                |
| Storage temperature                     | [°C] -25 ... +70              |
| Relative humidity                       | [%] 0 ... 90 (non-condensing) |
| CE mark (see declaration of conformity) | To EU Low Voltage Directive   |
| Safe stop                               | To EN 954-1 KAT3              |

### View of motor controller

From the front

CMMP-AS-...-3A

CMMP-AS-...-11A-P3



- 1 Earthing
- 2 Reset button
- 3 Ready/bus LED
- 4 Status display
- 5 Control connection for relay driver supply
- 6 Interface: RS232/RS485
- 7 Interface: CAN bus
- 8 Technology module slot
- 9 Screened connection

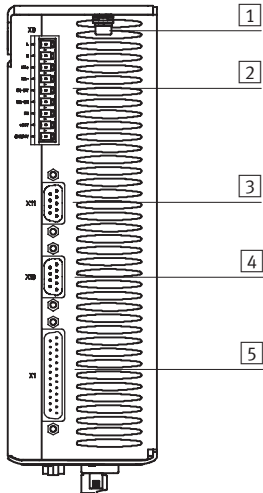
## Motor controllers CMMP-AS, for servo motors

Technical data

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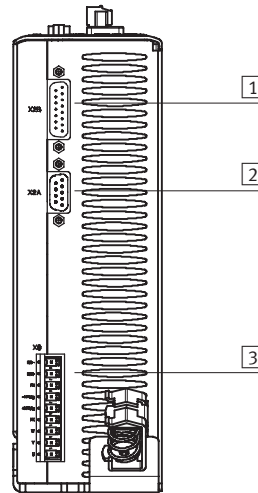
### View of motor controller

From above



- 1 Earthing screw
- 2 Power supply
- 3 Increment generator output
- 4 Increment generator input
- 4 I/O interface

From below

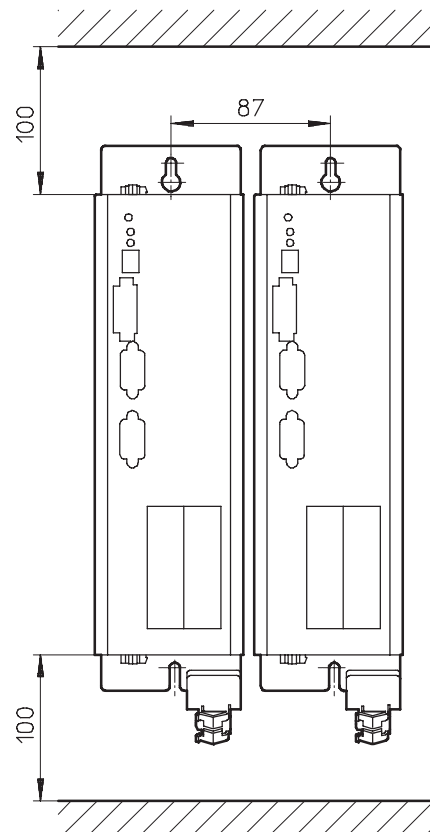
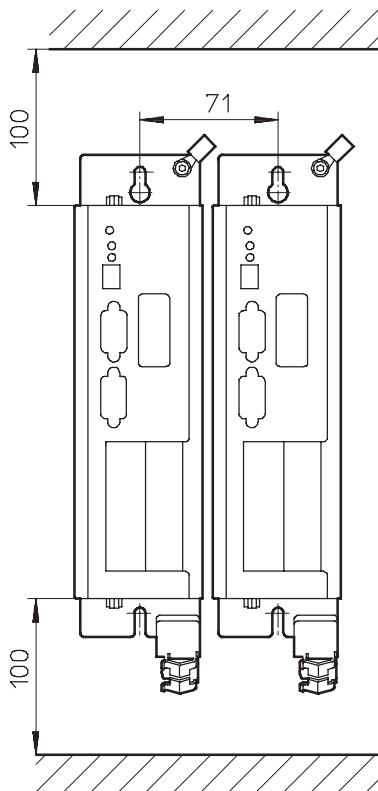


- 1 Encoder connection
- 2 Resolver connection
- 3 Motor connection

### Installation clearance for motor controller

CMMP-AS-...-3A

CMMP-AS-...-11A-P3



## Motor controllers CMMP-AS, for servo motors

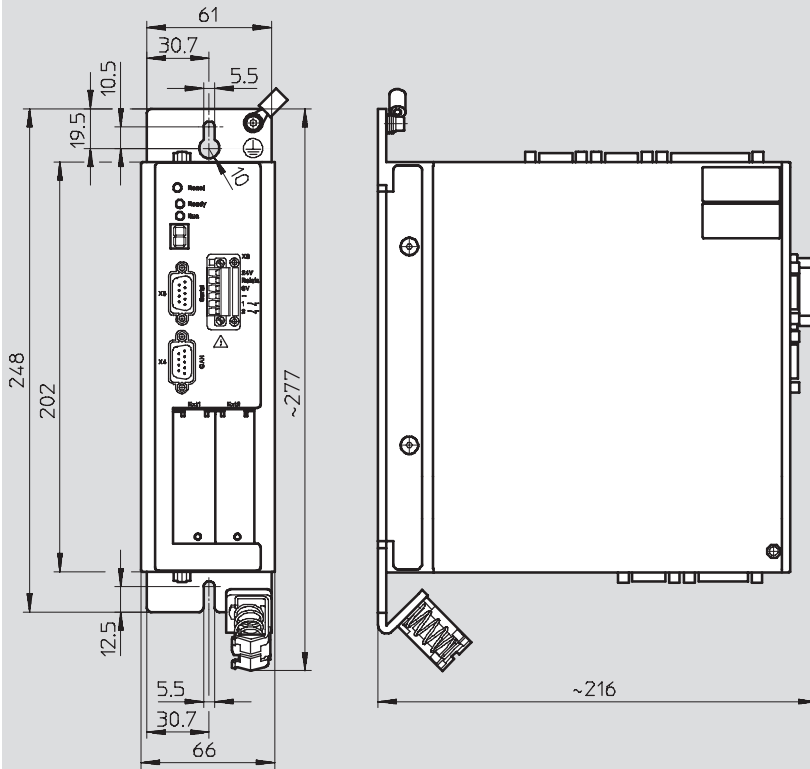
Technical data

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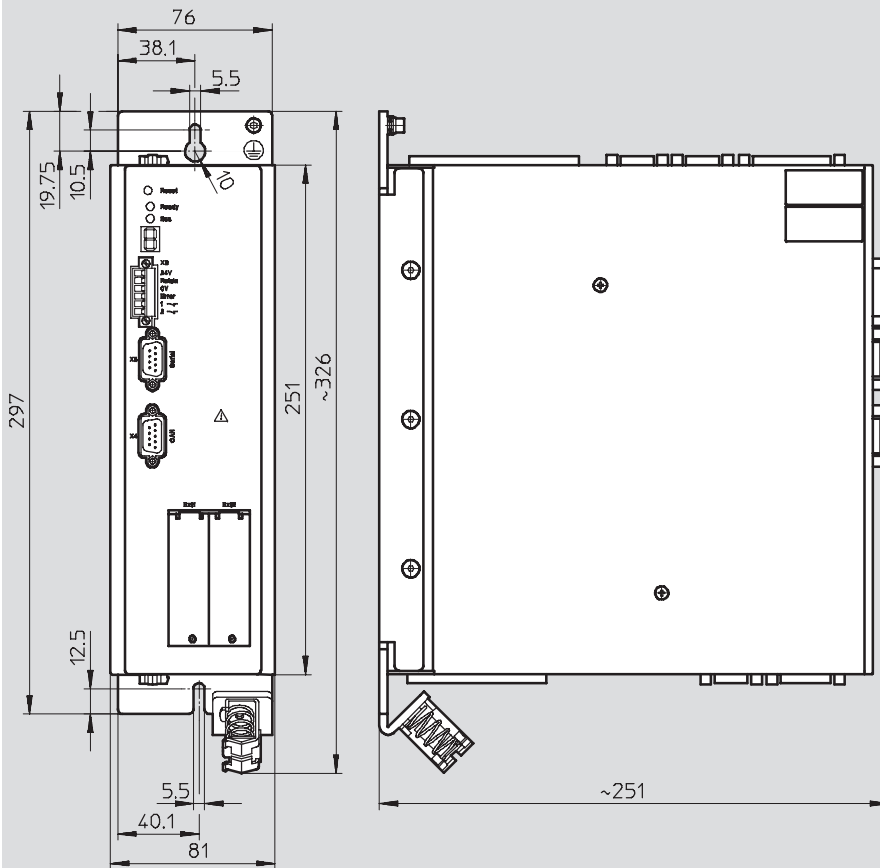
### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

CMMP-AS-...-3A

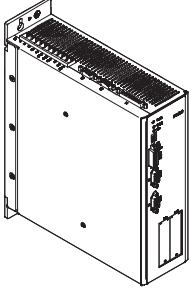


CMMP-AS-...-11A-P3



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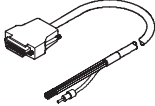
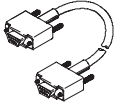
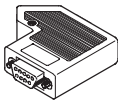
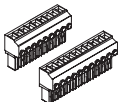
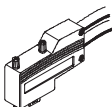
Technical data

| Ordering data                                                                     |                                                                                                                             | Part No. | Type               |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|  | Brief description<br><br>The plug range NEKM (→ 10) and the operating package (→ 11) are included in the scope of delivery. | 550 041  | CMMP-AS-C2-3A      |
|                                                                                   |                                                                                                                             | 550 042  | CMMP-AS-C5-3A      |
|                                                                                   |                                                                                                                             | 551 023  | CMMP-AS-C5-11A-P3  |
|                                                                                   |                                                                                                                             | 551 024  | CMMP-AS-C10-11A-P3 |

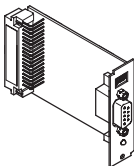
## Motor controllers CMMP-AS, for servo motors

Accessories

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| Ordering data – Cables and plugs                                                    |                                                    |                  |          |                         |
|-------------------------------------------------------------------------------------|----------------------------------------------------|------------------|----------|-------------------------|
|                                                                                     | Brief description                                  | Cable length [m] | Part No. | Type                    |
|    | Control cable, for I/O interface to any controller | 2.5              | 552 254  | NEBC-S1G25-K-2.5N-LE26  |
|    | Programming cable                                  | 1.5              | 160 786  | PS1-ZK11-NULLMODEM-1,5M |
|    | Encoder plug                                       | –                | 552 274  | NECC-S-S1G9-C2M         |
|    | Plug range for CMMP-AS-...-3A                      | –                | 552 255  | NEKM-C-2 <sup>1)</sup>  |
|                                                                                     | Plug range for CMMP-AS-...-11A-P3                  | –                | 552 256  | NEKM-C-3 <sup>1)</sup>  |
|   | Plug for Profibus interface                        | –                | 533 780  | FBS-SUB-9-WS-PB-K       |
|  | Plug for DeviceNet interface                       | –                | 525 635  | FBSD-KL-2X5POL          |

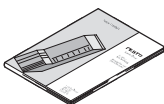
1) Comprising plug for power supply and plug for motor connection. The plug range is included in the scope of delivery

| Ordering data – Plug-in cards                                                       |                         |          |         |
|-------------------------------------------------------------------------------------|-------------------------|----------|---------|
|                                                                                     | Brief description       | Part No. | Type    |
|  | For Profibus interface  | 547 450  | CAMC-PB |
|                                                                                     | For DeviceNet interface | 547 451  | CAMC-DN |
|                                                                                     | For Sercos interface    | 552 258  | CAMC-SC |

## Motor controllers CMMP-AS, for servo motors

Accessories

| Ordering data – Software and documentation                                        |                                                                                                                                                                                                                                                                          |          |              |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|
|                                                                                   | Brief description                                                                                                                                                                                                                                                        | Part No. | Type         |
|  | Operating package contains:<br>– CD-ROM<br>– with user documentation for CMMP-AS,<br>in de, en, es, fr, it, sv<br>– with FCT (Festo Configuration Tool) configuration software,<br>in de, en<br>– Brief description<br>This package is included in the scope of delivery | 558 329  | P.BP-CMMP-AS |

| Ordering data – Documentation <sup>1)</sup>                                       |          |                                                                                      |                         |                                         |                         |
|-----------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------------|-------------------------|-----------------------------------------|-------------------------|
|                                                                                   | Language | Part No.                                                                             | Type                    | Part No.                                | Type                    |
|                                                                                   |          | for motor controller CMMP-AS-...-3A                                                  |                         | for motor controller CMMP-AS-...-11A-P3 |                         |
|  | DE       | 557 325                                                                              | P.BE-CMMP-AS-3A-HW-DE   | 557 331                                 | P.BE-CMMP-AS-11A-HW-DE  |
|                                                                                   | EN       | 557 326                                                                              | P.BE-CMMP-AS-3A-HW-EN   | 557 332                                 | P.BE-CMMP-AS-11A-HW-EN  |
|                                                                                   | ES       | 557 327                                                                              | P.BE-CMMP-AS-3A-HW-ES   | 557 333                                 | P.BE-CMMP-AS-11A-HW-ES  |
|                                                                                   | FR       | 557 328                                                                              | P.BE-CMMP-AS-3A-HW-FR   | 557 334                                 | P.BE-CMMP-AS-11A-HW-FR  |
|                                                                                   | IT       | 557 329                                                                              | P.BE-CMMP-AS-3A-HW-IT   | 557 335                                 | P.BE-CMMP-AS-11A-HW-IT  |
|                                                                                   | SV       | 557 330                                                                              | P.BE-CMMP-AS-3A-HW-SV   | 557 336                                 | P.BE-CMMP-AS-11A-HW-SV  |
|                                                                                   |          | Festo Handling and Positioning Profile (FHPP) for the motor controller family CMM... |                         |                                         |                         |
|                                                                                   | DE       | 555 695                                                                              | P.BE-CMM-FHPP-SW-DE     |                                         |                         |
|                                                                                   | EN       | 555 696                                                                              | P.BE-CMM-FHPP-SW-EN     |                                         |                         |
|                                                                                   | ES       | 555 697                                                                              | P.BE-CMM-FHPP-SW-ES     |                                         |                         |
|                                                                                   | FR       | 555 698                                                                              | P.BE-CMM-FHPP-SW-FR     |                                         |                         |
|                                                                                   | IT       | 555 699                                                                              | P.BE-CMM-FHPP-SW-IT     |                                         |                         |
|                                                                                   | SV       | 555 700                                                                              | P.BE-CMM-FHPP-SW-SV     |                                         |                         |
|                                                                                   |          | for Profibus interface                                                               |                         | for DeviceNet interface                 |                         |
|                                                                                   | DE       | 557 337                                                                              | P.BE-CMMP-FHPP-PB-SW-DE | 557 349                                 | P.BE-CMMP-FHPP-DN-SW-DE |
|                                                                                   | EN       | 557 338                                                                              | P.BE-CMMP-FHPP-PB-SW-EN | 557 350                                 | P.BE-CMMP-FHPP-DN-SW-EN |
|                                                                                   | ES       | 557 339                                                                              | P.BE-CMMP-FHPP-PB-SW-ES | 557 351                                 | P.BE-CMMP-FHPP-DN-SW-ES |
|                                                                                   | FR       | 557 340                                                                              | P.BE-CMMP-FHPP-PB-SW-FR | 557 352                                 | P.BE-CMMP-FHPP-DN-SW-FR |
|                                                                                   | IT       | 557 341                                                                              | P.BE-CMMP-FHPP-PB-SW-IT | 557 353                                 | P.BE-CMMP-FHPP-DN-SW-IT |
|                                                                                   | SV       | 557 342                                                                              | P.BE-CMMP-FHPP-PB-SW-SV | 557 354                                 | P.BE-CMMP-FHPP-DN-SW-SV |
|                                                                                   |          | for CANopen interface                                                                |                         | for Sercos interface                    |                         |
|                                                                                   | DE       | 557 343                                                                              | P.BE-CMMP-CO-SW-DE      | 557 361                                 | P.BE-CMMP-SC-SW-DE      |
|                                                                                   | EN       | 557 344                                                                              | P.BE-CMMP-CO-SW-EN      | 557 362                                 | P.BE-CMMP-SC-SW-EN      |
|                                                                                   | ES       | 557 345                                                                              | P.BE-CMMP-CO-SW-ES      | 557 363                                 | P.BE-CMMP-SC-SW-ES      |
|                                                                                   | FR       | 557 346                                                                              | P.BE-CMMP-CO-SW-FR      | 557 364                                 | P.BE-CMMP-SC-SW-FR      |
|                                                                                   | IT       | 557 347                                                                              | P.BE-CMMP-CO-SW-IT      | 557 365                                 | P.BE-CMMP-SC-SW-IT      |
|                                                                                   | SV       | 557 348                                                                              | P.BE-CMMP-CO-SW-SV      | 557 366                                 | P.BE-CMMP-SC-SW-SV      |

1) User documentation in paper form is not included in the scope of delivery