Festo Inc.
5300 Explorer Drive
L4W 5G4 Mississauga, Ontario

mailto: info_ca@festo.com
http://www.festo.ca

Customer Solutions

Phone: 0 905 / 624 90 00
Fax: 0 905 / 624 90 01

2.9.4

Plant designation	FMCP-3P-4CMMP-CPXE
Customer order no.	6800099354
Festo order number	5221134280
Material / Project no	23455210 / FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE

Customer

Name	FESTO CORPORATION
Plant	Customer plant
Street	5300 Explorer Dr,
Code postal: / location	L4W 5G4 Mississauga, ON

Type of project	37B1F6LX		
Responsible for project	Zaid Faraj		
Project name	MASTER-FMCP-1PH-4CMMP		
Created	19.11.2021	/	CA0ZFA
Edit	13.07.2022	/	ca0zfa
Approved		/	
Revision 1	13.07.2022	/	ca0zfa
Number of pages	65		

FESTO assumes no warranty and liability for any changes to this documentation made by the customer. The circuit diagrams were created on the EPLAN Electric P8 and EPLAN Fluid CAE systems. Changes may only be made using the CAE systems and the original parameters.

Summarized parts list

Quantity	Order number	Type number	Designation	Σ Length [m]	Manufacturer
1	194E-A32-1753	194E	IEC Load Switch, Base/DIN Rail Mounting	0	Allen-Bradley (NFPA Data)
1	194L-G3394	194L	Shaft Extension	0	Allen-Bradley (NFPA Data)
1	194L-HE6G-175	194L	Handle for Front/Base Mounting, 64 x 64mm	0	Allen-Bradley (NFPA Data)
1	35A1804U	35A1804U	Cable 4 x 18AWG	0	AWP
1	216771	M22-L-W	Voyant lumineux, plat, blanc.	0	Eaton
3	550311	NEBM-M23G8-E-10-Q9N-LE8	Motor cable	30	Festo
3	550319	NEBM-M12W8-E-10-N-S1G15	Encoder cable	30	Festo
1	8150834	NEBM-M23G15-EH-10-Q7N-S1LEG21-CS		10	Festo
6	AT-C5-3BU-10PK		3FT Cat5e UTP 24AWG Ethernet Network	0	Festo
4	1622902	CMMP-AS-C5-3A-M0	Motor controller	0	Festo
3	550138	EMMS-AS-140-L-HS-RMB	Servo motor	0	Festo
1	5242219	EMMT-AS-60-L-HS-RMB	Servo motor	0	Festo
1	4252744	CPX-E-CEC-M1-EP	control unit	0	Festo
1	58812	8 port unmanaged switch	Xelity 8TX	0	Murrelektronik
1	9000-41068-0400000	MICO Basic 8.4	MICO BASIC 8.4 electronic circuit protection 8 CHANNELS	0	Murrelektronik
1	85442	85442	EMPARRO POWER SUPPLY 1-PHASE,	0	Murrelektronik
1	3000-33113-3020060	MIRO SAFE+ T 2 24	MIRO SAFE+ T 2 24 24 VAC/DC - 3 N/O contact / 2 N/O contact delayed	0	Murrelektronik
1	4000-73000-0010000	4000-73000-0010000	Connector (special)	0	Murrelektronik
4	2761622	SUBCON 25/M-SH	D-SUB bus connector	0	Phoenix Contact
1	3238124	SK.3238124	TopTherm fan-and-filter units	0	Rittal
38	2434340000	AMC 2.5	motor connection terminal	0	Weidmueller
1	BR1C06UC	BR1C06UC	Branch Rated Circuit Breaker - 6A	0	Weidmueller
4	BR1C15UC	BR1C15UC	Branch Rated Circuit Breaker - 15A	0	Weidmueller
1	1791010000	ZDK 2.5-2PE	Multi-tier modular terminal	0	Weidmueller
3	1791030000	ZDK 2.5-2V	Multi-tier modular terminal	0	Weidmueller

Item parts list

Reference identification Placement	Quantity	Order number Type number	Designation	X-length Length [m]	Manufacturer	Identcode 1 Identcode 2
CB0120 =A1+O1&EFS/1.1	1	BR1C06UC BR1C06UC	Branch Rated Circuit Breaker - 6A		Weidmueller	
CB0130 =A1+O1&EFS/1.2	1	BR1C15UC BR1C15UC	Branch Rated Circuit Breaker - 15A		Weidmueller	
CB0140 =A1+O1&EFS/1.3	1	BR1C15UC BR1C15UC	Branch Rated Circuit Breaker - 15A		Weidmueller	
CB0150 =A1+O1&EFS/1.4	1	BR1C15UC BR1C15UC	Branch Rated Circuit Breaker - 15A		Weidmueller	
CB0160 =A1+O1&EFS/1.5	1	BR1C15UC BR1C15UC	Branch Rated Circuit Breaker - 15A		Weidmueller	
-CBL0510 =A1+O1&EFS/5.1	1	35A1804U 35A1804U	Cable 4 x 18AWG		AWP	
CBL2210 =A1+O1&EFS/22.0	1	550311 NEBM-M23G8-E-10-Q9N-LE8	Motor cable	10 m	Festo	
CBL2230 =A1+O1&EFS/22.3	1	550319 NEBM-M12W8-E-10-N-S1G15	Encoder cable	10 m	Festo	
CBL2610 =A1+O1&EFS/26.0	1	550311 NEBM-M23G8-E-10-Q9N-LE8	Motor cable	10 m	Festo	
CBL2630 =A1+O1&EFS/26.3	1	550319 NEBM-M12W8-E-10-N-S1G15	Encoder cable	10 m	Festo	
CBL3010 =A1+O1&EFS/30.0	1	550311 NEBM-M23G8-E-10-Q9N-LE8	Motor cable	10 m	Festo	
CBL3030 =A1+O1&EFS/30.3	1	550319 NEBM-M12W8-E-10-N-S1G15	Encoder cable	10 m	Festo	
CBL3410 =A1+O1&EFS/34.0	1	8150834 NEBM-M23G15-EH-10-Q7N-S1LEG21-CS		10 m	Festo	
CBL5010 =A1+O1&EFS/50.0	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	
-CBL5020 =A1+O1&EFS/50.2	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	

Item parts list

Reference identification Placement	Quantity	Order number Type number	Designation	X-length Length [m]	Manufacturer	Identcode 1 Identcode 2
-CBL5030 =A1+O1&EFS/50.3	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	
-CBL5040 =A1+O1&EFS/50.4	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	
-CBL5050 =A1+O1&EFS/50.5	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	
-CBL5080 =A1+O1&EFS/11.4	1	AT-C5-3BU-10PK	3FT Cat5e UTP 24AWG Ethernet Network		Festo	
CMMP-AS-1 =A1+O1&EFS/21.0	1	1622902 CMMP-AS-C5-3A-M0	Motor controller		Festo	
CMMP-AS-2 =A1+O1&EFS/25.0	1	1622902 CMMP-AS-C5-3A-M0	Motor controller		Festo	
CMMP-AS-3 =A1+O1&EFS/29.0	1	1622902 CMMP-AS-C5-3A-M0	Motor controller		Festo	
CMMP-AS-4 =A1+O1&EFS/33.0	1	1622902 CMMP-AS-C5-3A-M0	Motor controller		Festo	
CON2300 =A1+O1&EFS/23.0	1	2761622 SUBCON 25/M-SH	D-SUB bus connector		Phoenix Contact	
CON2700 =A1+O1&EFS/27.0	1	2761622 SUBCON 25/M-SH	D-SUB bus connector		Phoenix Contact	
CON3100 =A1+O1&EFS/31.0	1	2761622 SUBCON 25/M-SH	D-SUB bus connector		Phoenix Contact	
CON3500 =A1+O1&EFS/35.0	1	2761622 SUBCON 25/M-SH	D-SUB bus connector		Phoenix Contact	
-DS0110 =A1+O1&EFS/1.1	1	194E-A32-1753 194E	IEC Load Switch, Base/DIN Rail Mounting		Allen-Bradley (NFPA Data)	
-DS0110 =A1+O1&EFS/1.1	1	194L-G3394 194L	Shaft Extension		Allen-Bradley (NFPA Data)	
-DS0110 =A1+O1&EFS/1.1	1	194L-HE6G-175 194L	Handle for Front/Base Mounting, 64 x 64mm		Allen-Bradley (NFPA Data)	

Project status	xxx	FESTO CORPORATION	FESTO	Item parts list	EN &MPC
00A. 12.07.2022 ca0zfa	Date 19.11.2021 CA0ZFA				Material no.: 23455210 = +
	Edit by 12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE			Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 2.1
	Appr.				Productionorder: 001330719396 Pg. 2.2
Modification Date Name	Standard DIRECTIVE 2014/35/EU				DIN A3 13.07.2022

Item parts list

Reference identification Placement	Quantity	Order number Type number	Designation	X-length Length [m]	Manufacturer	Identcode 1 Identcode 2
ETH5000 =A1+O1&EFS/50.0	1	58812 8 port unmanaged switch	Xelity 8TX		Murrelektronik	
FAN5530 =A1+O1&EFS/55.3	1	3238124 SK.3238124	TopTherm fan-and-filter units		Rittal	
FU0220 =A1+O1&EFS/2.3	1	9000-41068-0400000 MICO Basic 8.4	MICO BASIC 8.4 electronic circuit protection 8 CHANNELS		Murrelektronik	
-LT1 =A1+O1&EFS/2.2	1	216771 M22-L-W	Voyant lumineux, plat, blanc.		Eaton	
MOT1 =A1+O1&EFS/22.0	1	550138 EMMS-AS-140-L-HS-RMB	Servo motor		Festo	
MOT2 =A1+O1&EFS/26.0	1	550138 EMMS-AS-140-L-HS-RMB	Servo motor		Festo	
MOT3 =A1+O1&EFS/30.0	1	550138 EMMS-AS-140-L-HS-RMB	Servo motor		Festo	
MOT4 =A1+O1&EFS/34.0	1	5242219 EMMT-AS-60-L-HS-RMB	Servo motor		Festo	
PLC1102 =A1+O1&EFS/11.1	1	4252744 CPX-E-CEC-M1-EP	control unit		Festo	
-PSU211 =A1+O1&EFS/2.0	1	85442 85442	EMPARRO POWER SUPPLY 1-PHASE,		Murrelektronik	
-SR0510 =A1+O1&EFS/5.0	1	3000-33113-3020060 MIRO SAFE+ T 2 24	MIRO SAFE+ T 2 24 24 VAC/DC - 3 N/O contact / 2 N/O contact delayed		Murrelektronik	
-XF5080 =A1+O1&EFS/11.4	1	4000-73000-0010000 4000-73000-0010000	Connector (special)		Murrelektronik	

0	1	2	3	4	5	6	7	8	9

Technical notes

Voltage and frequency, as well as the setting points for motor protection and time relays must be checked prior to commissioning.

All terminal screws must be tightened prior to commissioning and during maintenance work

Keep doors closed at all times, as dust and moisture may cause malfunctioning.

The specified cable cross sections are minimum cross section for copper, without taking into account:

a.) Cable lengths and the resulting voltage drops. (Permissible voltage drop for motors according to VDE 0530 5%* Un)

b.) Type of cable installation and permissible ambient temperature (Installation type reduction factor 0,8 / amb. temp. 20° C)

In the event that operating voltages deviate from the assumed values listed above, correspondingly larger cross-sections must be selected.

(e.g. with increased voltage drop, increased ambient temp., unsuitable type of cable installation, high wiring density)

Sizing of cables is the responsibility of the customer

Air supply:

This controller is designed for a state-of-the-art (ISO 8573-A:2010) compressed air network

We require compressed air that is unlubricated, free of residual oil (residual oil from compressors max. 0.1mg/m³ for "HEES fluids, biodegradable oils" or max. 5mg/m³ for mineral oils permissible) and appropriately dried

A filter should remove solid contamination from the compressed air. (ISO 8573-A:2010)

Class:
7:4:4 --> 40µm Filter

Technical data

Reference identification	=A1+O1
IP-degree of protection	UL Type 1
Ambient temperature	+5°C - +35°C
Humidity	max. 50%

FLA Rating

CMMP-AS-C15-11A-P3-M3	13A
CMMP-AS-C5-11A-P3-M3	5.5A
Power Supply	0.55

FLA = (3x13) + (2x5.5) + 0.55 = 50.55 A
Sizing of disconnect switch as per UL508A standards section 30.2.2 : 63.18 A
Amacities of Main supply conductor as per UL508 standard table 28.1 : 8AWG

Pneumatics

Max. system pressure	na
Working pressure	na
Supply air connection	Tube .... mm externally calibrated
Working ports	according to circuit diagram

Special feature

No single-core marking
no hose designation

Wire colours used:

Power circuit:	Black (BK)
Power circuit (permanent voltage):	Yellow (YE)
Neutral conductor:	Blue (BU)
Protective conductor:	Green/yellow (GNYE)
Control circuit AC:	Red (RD)
Control circuit DC (+):	Dark blue (DBU)
Control circuit DC (-):	Dark blue (DBU)
excepted circuits:	Orange (OG)

Standards used:

NFPA 79	Electrical Standard for Industrial Machinery
UL 508A	STANDARD FOR SAFETY Industrial Control Panels
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines – Part 1: General requirements
EN ISO 4414:2010	Pneumatic fluid power - General rules and safety requirements for systems and their components

Hose used

PUN-H-.....-BL --> Control cabinet
PUN-H-.....-SW --> Control cabinet outside
PUN-H-...-NT --> Condensate drain
PUN-.....-BL --> M5-Series

FESTO
5300 Explorer Drive , Mississauga, Ontario
Tel: 1-877-GO-FESTO Fax: 1-877-FX-FESTO
CONTROL PANEL

Part # / Project # :	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE		
Prod. Order / Serial #:	CA_CS.2178969-A 1330719396		
Year of Mfg.:	2021		
Main Voltage	480 VAC	FLA	50.5 A
Largest Motor:	7.8 A		
Fault Rating:	5 KVA	Control Voltage:	24V DC
Panel type:	Type 1		
Operating Pressure	na		

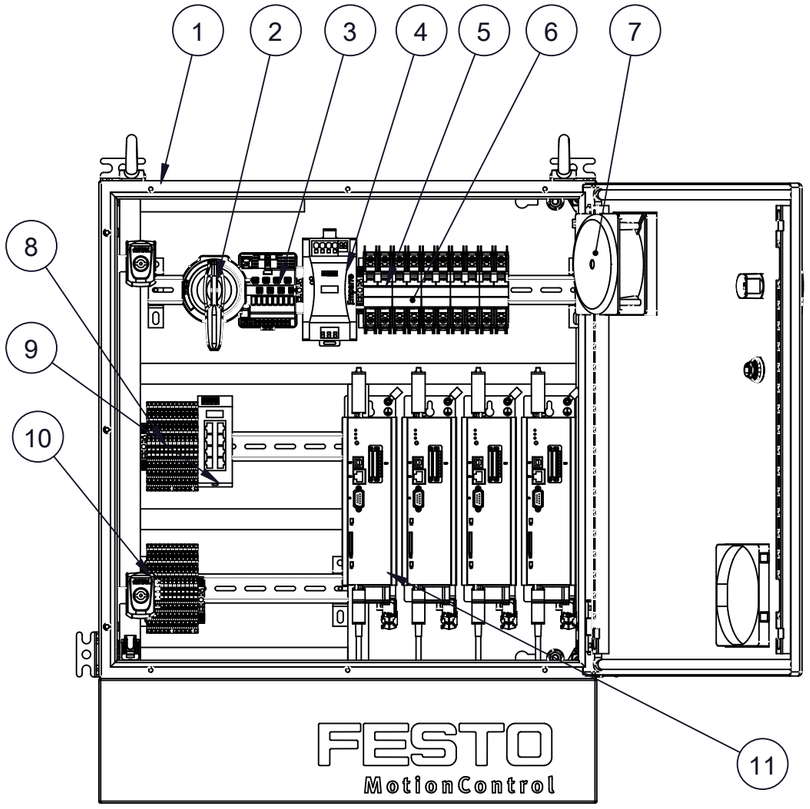
Level 4
Level 3
Level 2
Level 1

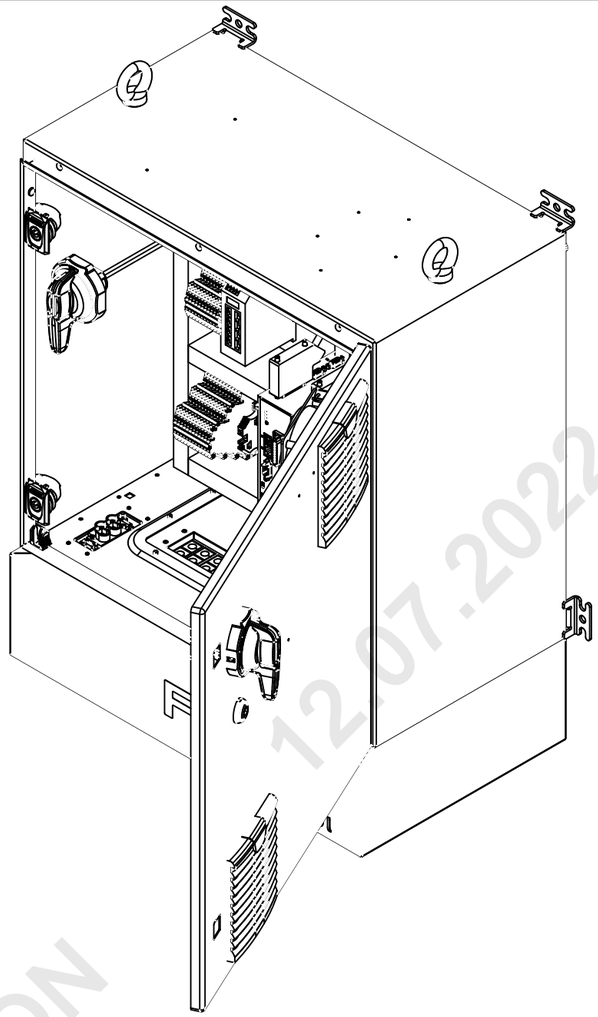
Level No.
-XD5 1 2
Terminal No.

Project status		xxx			FESTO CORPORATION		Technical notes	EN	&MEC
			Date	19.11.2021	CA0ZFA			Material no.: 23455210	=
			Edit by	08.07.2022	ca0zfa				+
			Appr.		FMCP-3P-4CMMP-CPXE			Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 1
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU				Productionorder: 001330719396	Pg. 1

DIN A3 13.07.2022

REV.	DESCRIPTION	DATE





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	FMCP Front ASSY	Enclosure	1
2	DS1 / 194E-A32-1753	Disconnect Switch	1
3	FU0220 / MURR.9000-41068-0400000	Smart Fuse	1
4	PSU211 / MURR.85442	Power Supply	1
5	BR1C6UC	Circuit Breaker 6A	1
6	BR1C15UC	Circuit Breaker 15A	4
7	RIT.3238124	Fan	1
8	AMC 2.5	Terminal Bank 1	12
9	MURR.58812	Ethernet Switch	1
10	AMC 2.5	Terminal Bank 2	12
11	1622902	Motor Controller	4

MATERIAL

FINISH

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	ca0zfa	2021-12-07

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN MILLIMETERS

TOLERANCES:
x ≂±1
x.x ≂±0.1
x.xx ≂±0.01
ANGLES ≂1°

FESTO
5300 Explorer Drive, Mississauga ON L4W 5G4
TEL: (905) 624-4600

FILE NAME: FMCP-UR_ASSY_CMMP

TITLE:

DWG. NO.

REV
-

SCALE: 1:7

SHEET 1 OF 1

&MTB/1 8 7 6 5 4 3 2 1 &EFA/1

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
	12.07.2022	ca0zfa	Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

Control cabinet construction

EN &MTL

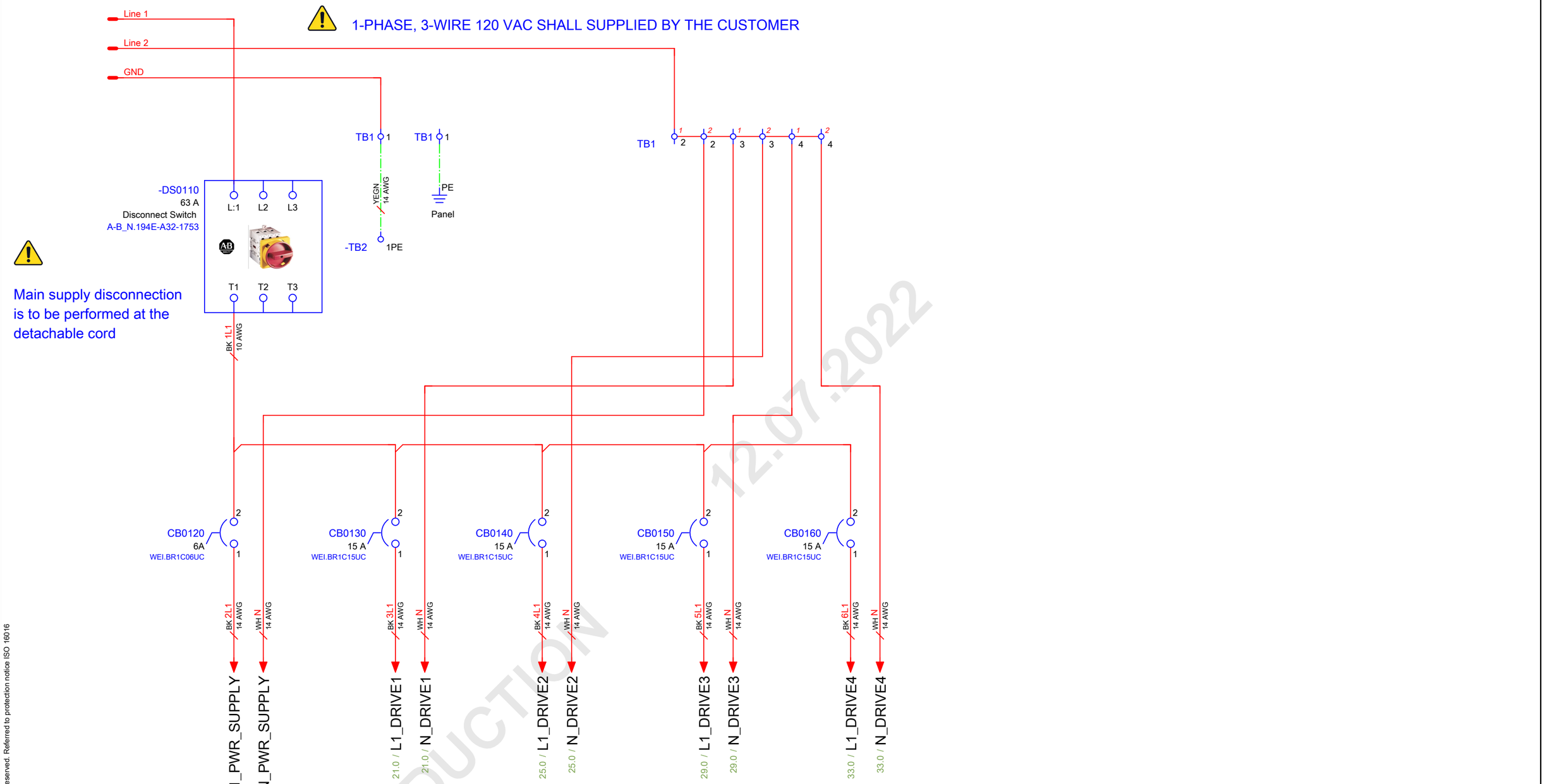
Material no.: 23455210 =

+

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 1

Productionorder: 001330719396 Pg. 1

DIN A3 13.07.2022



Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
1	01.02.2022	ca0zfa	Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

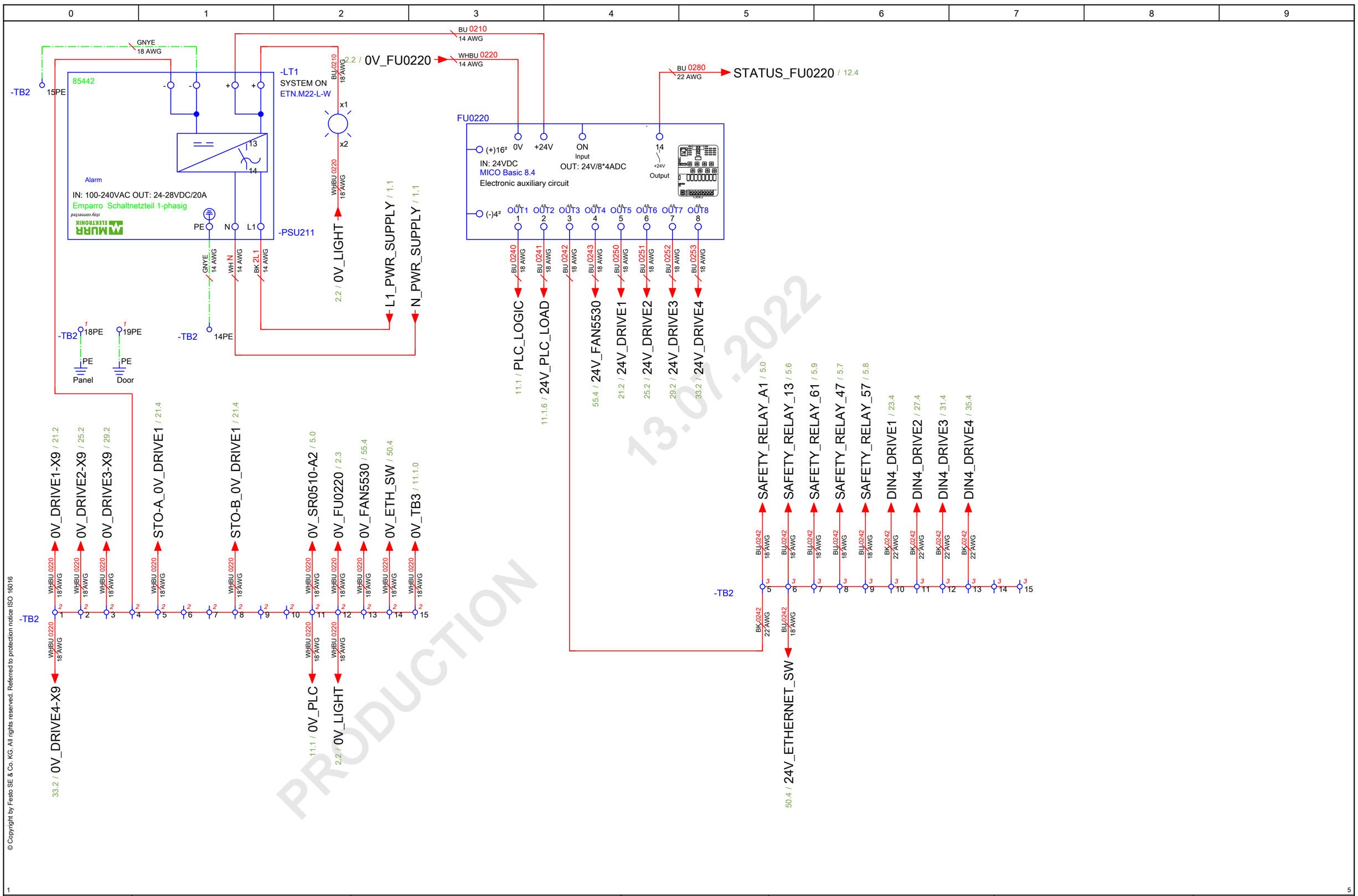
FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

MAIN AC

	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	1
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022



Project status		xxx			
00B.	13.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
00A.	12.07.2022	ca0zfa	Edit by	13.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

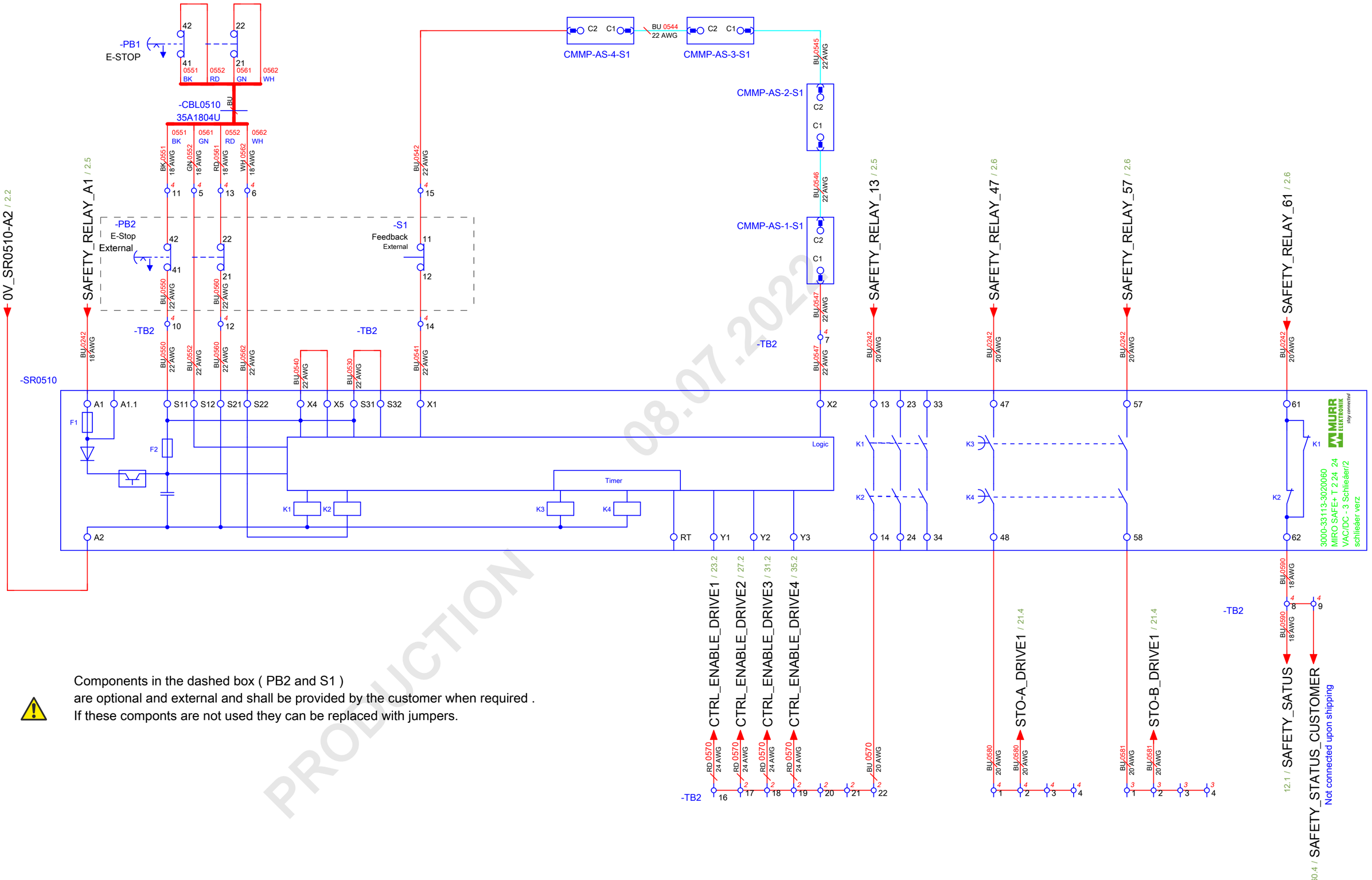
FMCP-3P-4CMMP-CPXE

FESTO

24VDC Supply

	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	2
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022



Components in the dashed box (PB2 and S1)
are optional and external and shall be provided by the customer when required .
If these comonts are not used they can be replaced with jumpers.

Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

SAFETY

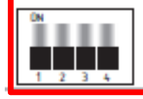
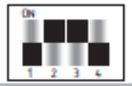
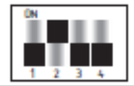
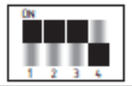
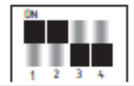
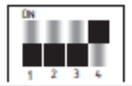
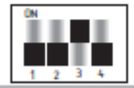
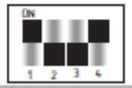
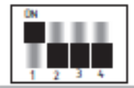
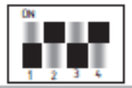
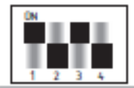
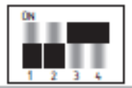
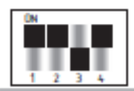
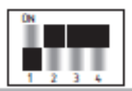
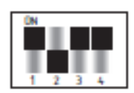
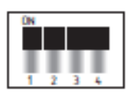
EN		&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	5
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022

Time setting (see Fig. 3 and 4)

DIP switch settings:
- The DIP switches are located underneath the front cover of the safety-monitoring module (see Fig. 3 and 4).
- Both DIP switches SW 1 (channel 1) and SW 2 (channel 2) must be set identically.
- The DIP switches can be set when the operating voltage is on; however, in order for the setting to be saved in the MIRO SAFE+ T 2 24, the voltage supply must be interrupted for approx. 3 seconds.
- The functionality of the setting must be checked.

Fig. 3

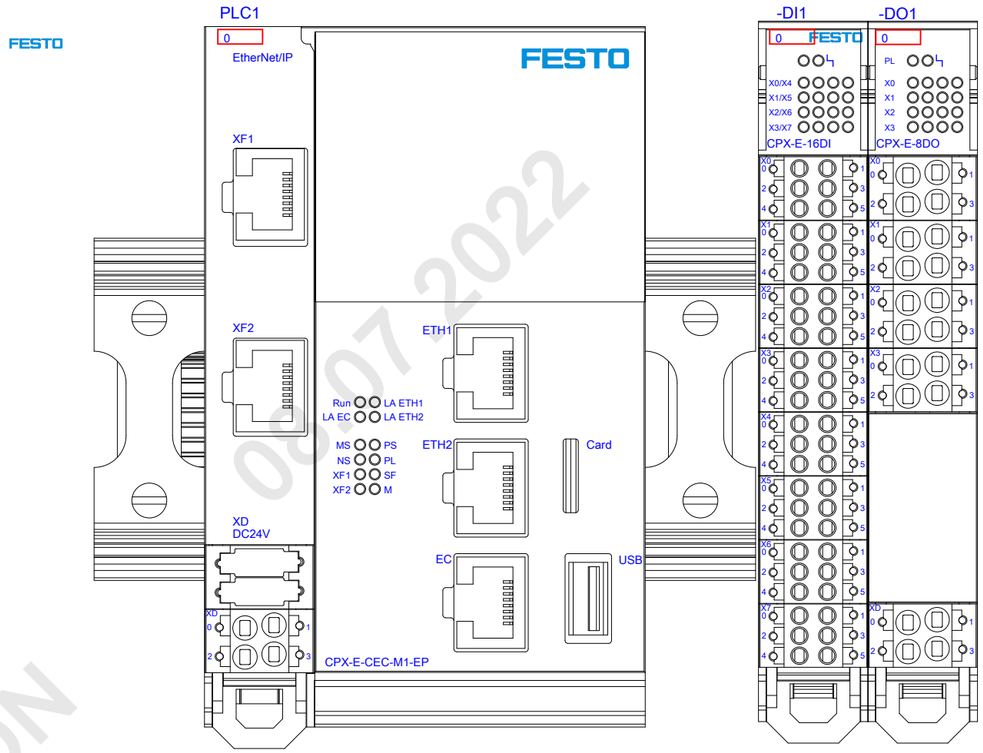
DIP switch setting	Drop-out delay	DIP switch setting	Drop-out delay
	<0,1 s		5.0 s
	0.5 s		8.5 s
	1.0 s		10.0 s
	1.5 s		12.0 s
	2.0 s		15.0 s
	2.5 s		20.0 s
	3.0 s		25.0 s
	4.0 s		30.0 s

PANEL WILL BE SHIPPED WITH THE SETTING MARKED ABOVE

Project status		xxx			FESTO CORPORATION		SAFETY RELAY CONFIGURATION	EN &EFS
			Date	19.11.2021 CA0ZFA				= A1
			Edit by	08.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE		Material no.: 23455210	+ O1
			Appr.				Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 5.1
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU			Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

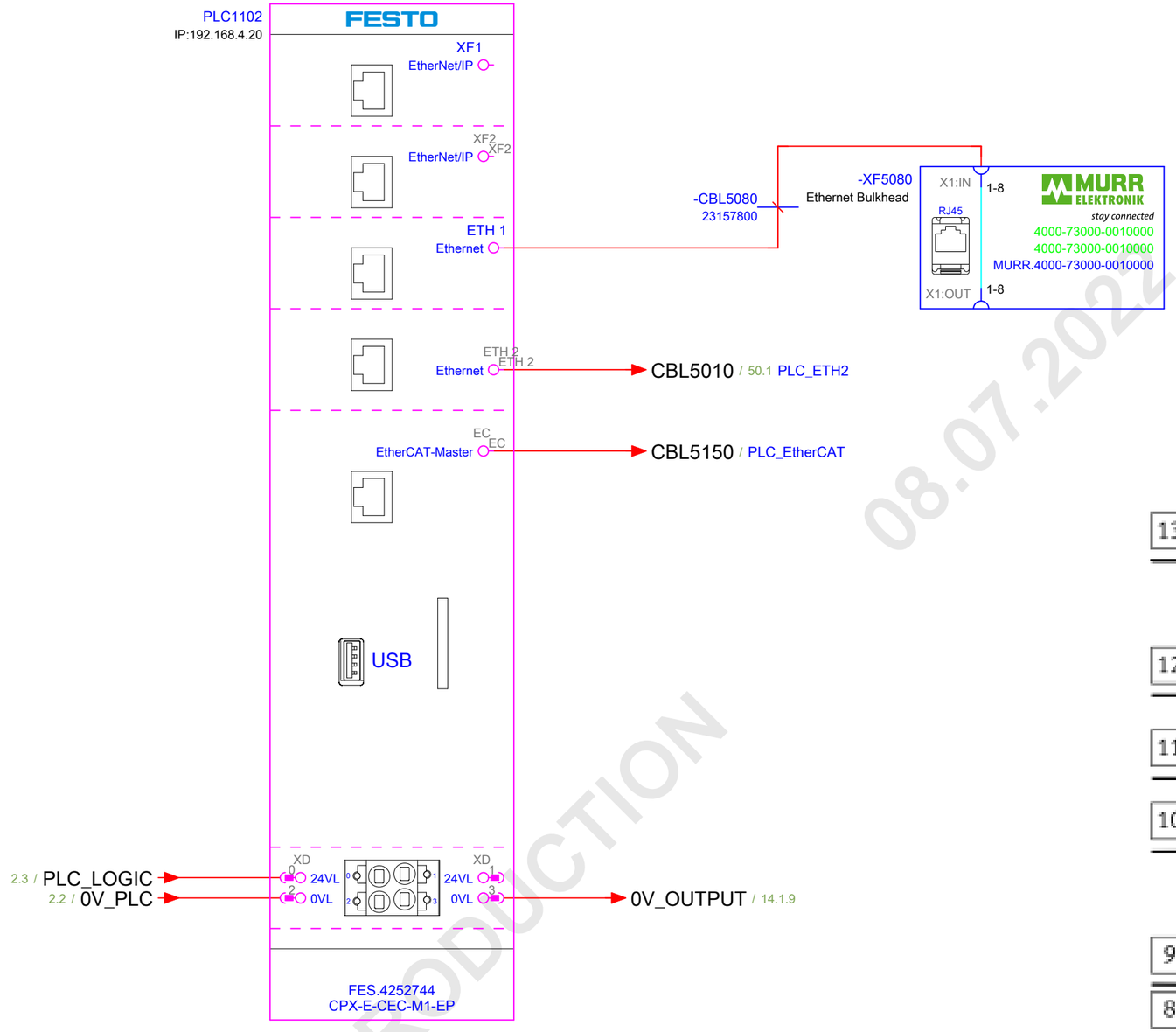


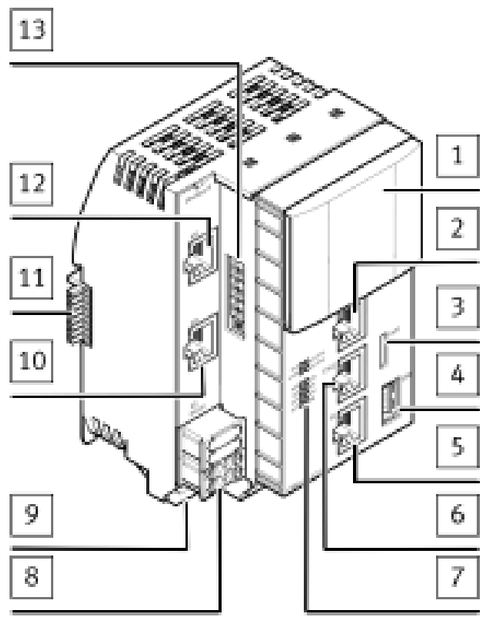
5.1

11

Project status		xxx			FESTO CORPORATION		Panel - layout	EN	&EFS
			Date	19.11.2021 CA0ZFA				= A1	
			Edit by	08.07.2022 ca0zfa				Material no.: 23455210	+ O1
			Appr.		FMCP-3P-4CMMP-CPXE			Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 10
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU				Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022





1 Cover
2 Ethernet network connection [ETH1]
3 Memory card slot [Card]
4 USB interface [USB]
5 EtherCAT Master network connection [EC]
6 Ethernet network connection [ETH2]
7 LED indicators
8 Terminal strip for operating voltage supply $U_{EL/SEN}$ [XD]
9 Terminal strip interlock
10 EtherNet/IP network connection Port 2 [XF2]
11 Linking element
12 EtherNet/IP network connection Port 1 [XF1]
13 Rotary switch for setting the 4th octet of the IP address for the EtherNet/IP network connection

10

11.1

Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

electrical Supply 1

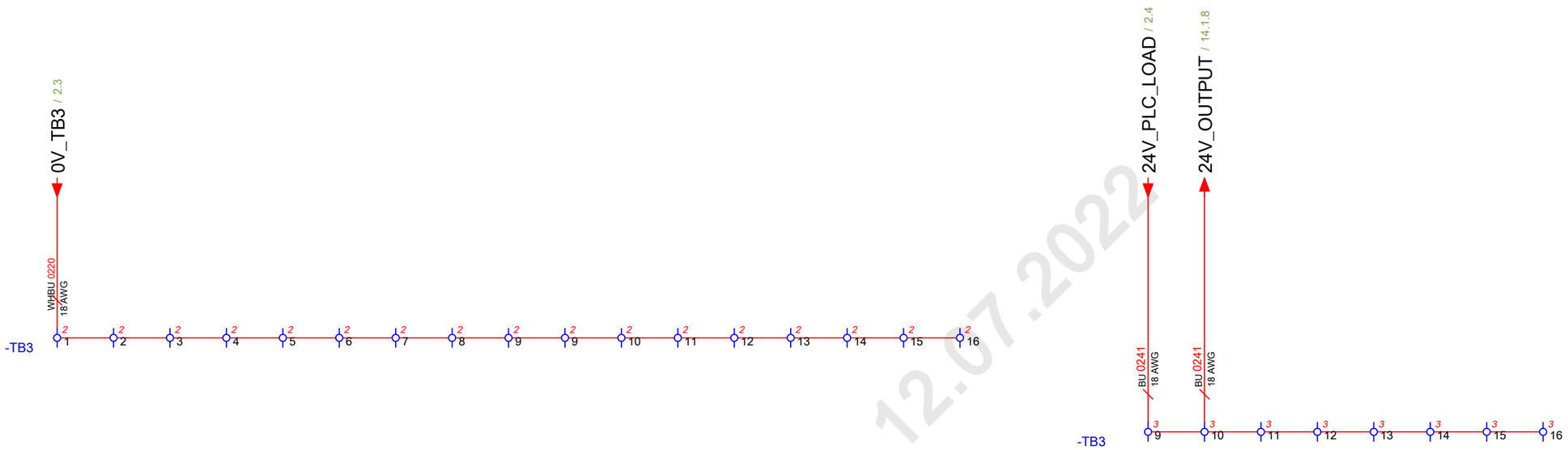
EN &EFS

Material no.: 23455210 = A1 + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 11

Productionorder: 001330719396 Pg. 60

DIN A3 13.07.2022



Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

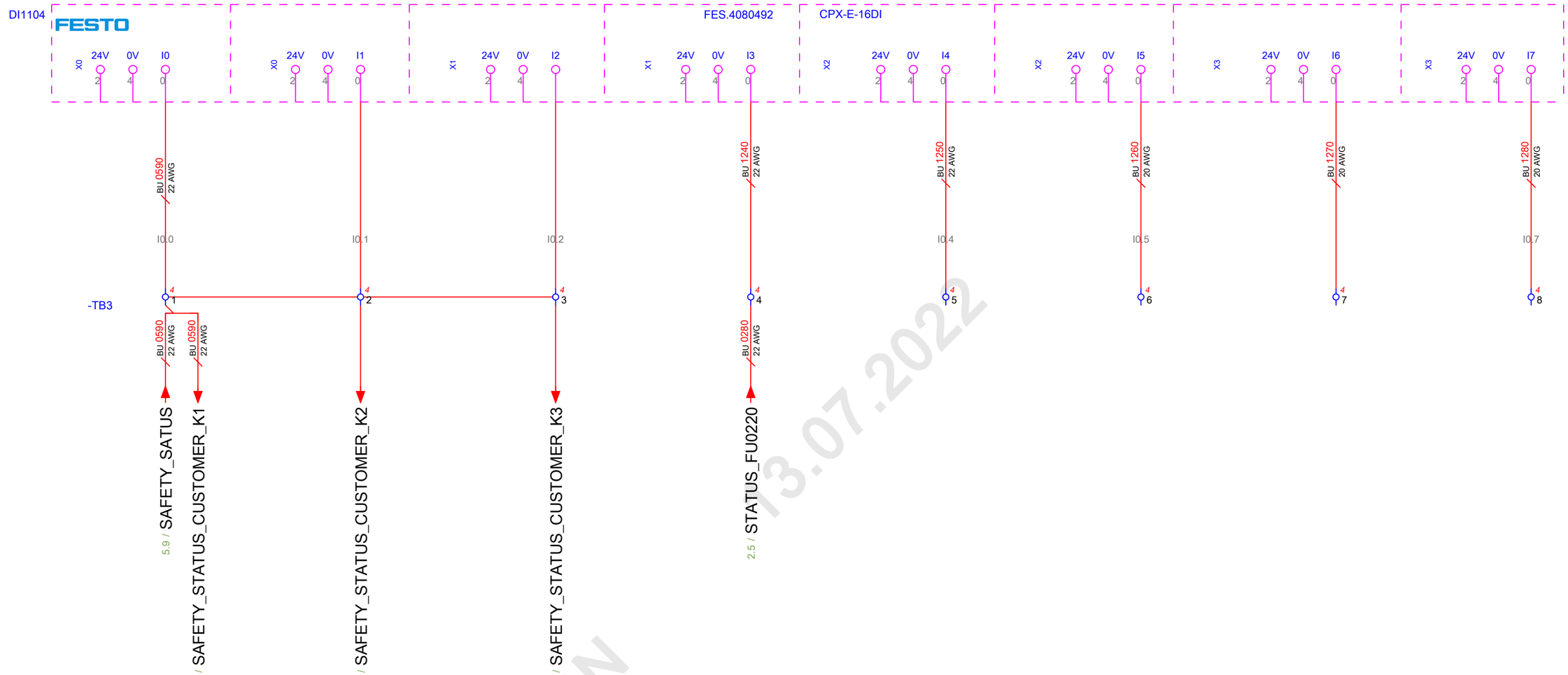
FMCP-3P-4CMMP-CPXE

FESTO

External 24V and 0V Distribution Terminals

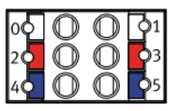
	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	11.1
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022



- The first three digital inputs are reserved for customer safety staus.
- In case individual safety status signals are required for K1, K2 and K3:
  • Remove the jumper between terminal 1, 2 and 3 level (4).
  • Labels wires as required

Input 4 and 5 are reserved for Mico Fuse status.
These are optional and can be used differently
if fuse status are not required .

Connection [X0] ... [X7]		Signal
	0	Input 0, 2, 4, ...
	1	Input 1, 3, 5, ...
	2	+24 V DC input 0, 2, 4, ...
	3	+24 V DC input 1, 3, 5, ...
	4	0 V DC input 0, 2, 4, ...
	5	0 V DC input 1, 3, 5, ...

Project status		xxx			
00B.	13.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
00A.	12.07.2022	ca0zfa	Edit by	13.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CPX-E-16DI

EN &EFS

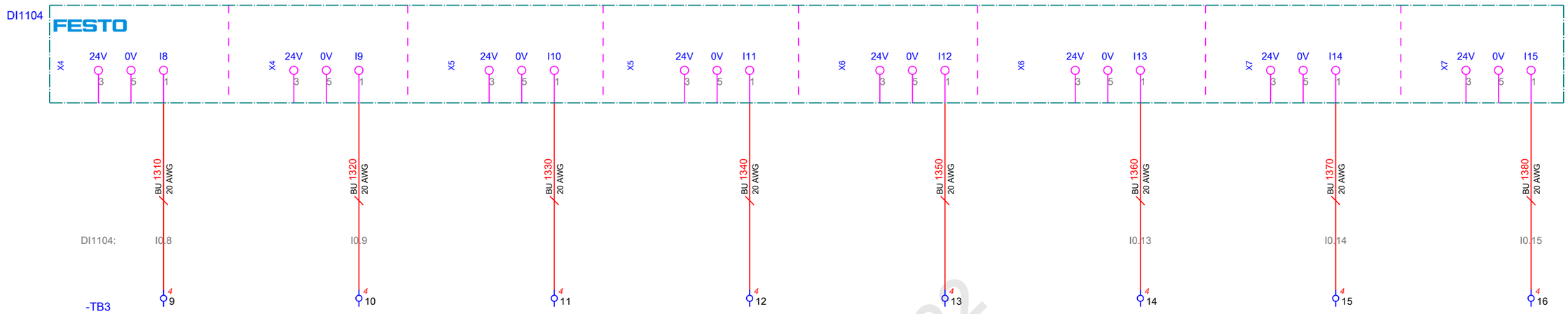
Material no.: 23455210 = A1 + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 12

Productionorder: 001330719396 Pg. 60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9



Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

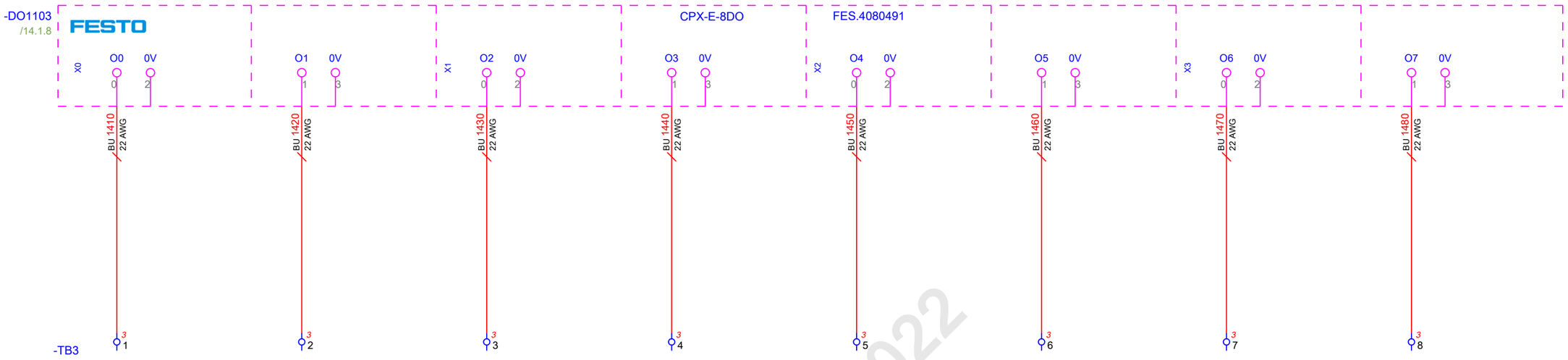
FMCP-3P-4CMMP-CPXE

FESTO

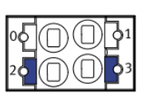
CPX-E-16DI

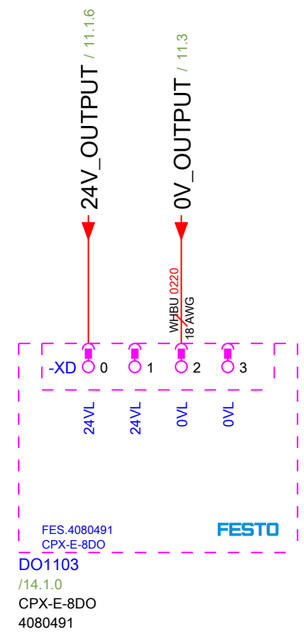
	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	13
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022



Connection [X0] ... [X3]	Signal
0	+24 V DC output 0, 2, 4, ...
1	+24 V DC output 1, 3, 5, ...
2	0 V DC output 0, 2, 4, ...
3	0 V DC output 1, 3, 5, ...





13

20

Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CPX-E-8DO

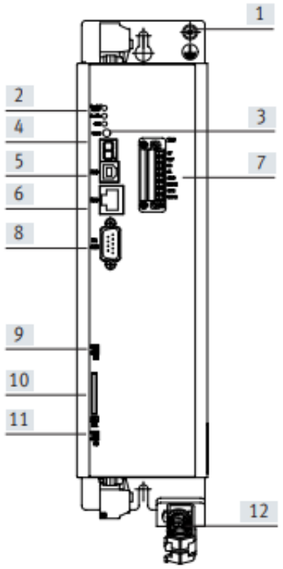
EN		&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	14.1
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022

1	2	3	4	5	6	7	8	9	10

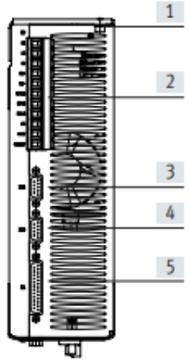
View of motor controller

CMMP-AS-...-M0



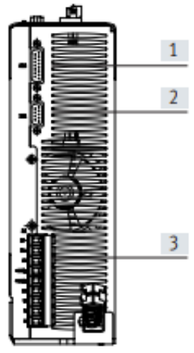
[1] PE connection
[2] LEDs
[3] Reset button
[4] Seven-segment display
[5] X19 USB interface
[6] X18 Ethernet interface
[7] X40 digital I/O interface for controlling the STO function
[8] X4 CANopen interface
[9] Activation of CANopen terminating resistor
[10] SD/MMC card slot
[11] Activation of firmware download
[12] Shield connection

From above



[1] PE connection
[2] X9 power supply
[3] X11 incremental encoder interface (output)
[4] X10 incremental encoder interface (input)
[5] X1 I/O interface

From underneath



[1] X2B encoder connection
[2] X2A resolver connection
[3] X6 motor connection

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

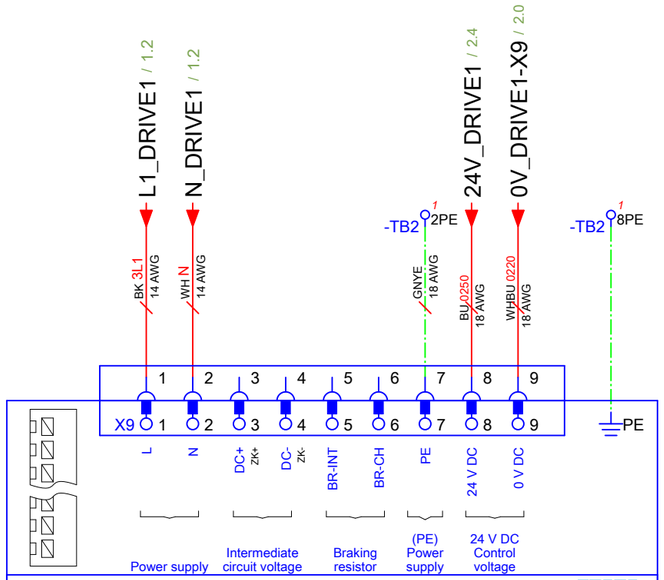
FMCP-3P-4CMMP-CPXE

FESTO

Overview

		EN	&EFS
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	20
Productionorder:	001330719396	Pg.	60

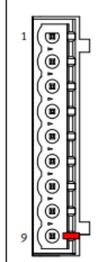
DIN A3 13.07.2022



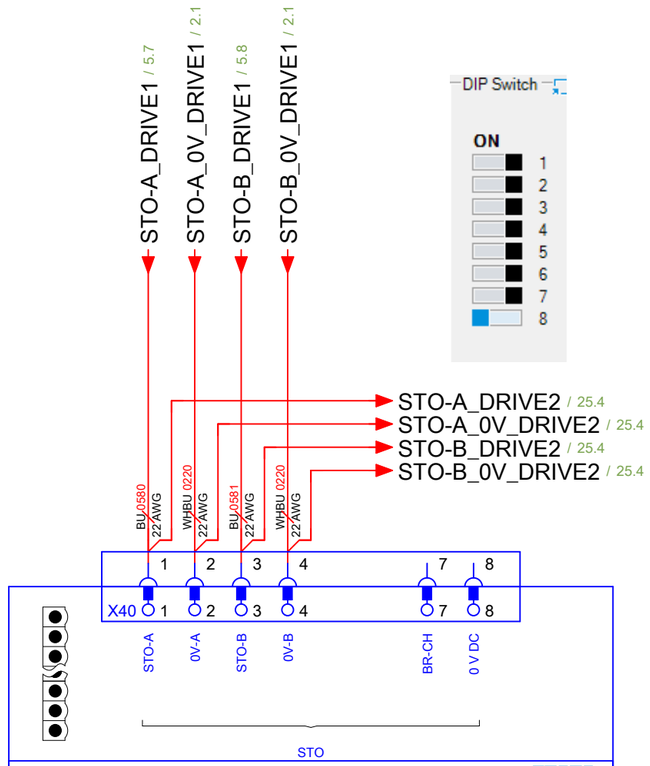
CMMP-AS-1

/21.3
/21.6
/22.0
/22.3
/22.7
/23.0
/23.6
/23.6
/30.7
/50.1

4.8.2 Pin assignment [X9] – single-phase

[X9]1)	Pin no.	Designation	Value	Specification
	1	L	100 ... 230 V AC	Mains phase
	2	N	±10% 50 ... 60 Hz	Mains neutral conductor (reference potential)
	3	ZK+	60 ... 380 V DC	Alternative supply: Positive intermediate circuit voltage
	4	ZK-	GND_ZK	Alternative supply: Negative intermediate circuit voltage
	5	BR-INT	< 460 V DC	Internal braking resistor connection (bridge after BR-CH when using the internal resistor).
	6	BR-CH	< 460 V DC	Brake chopper connection for – internal braking resistor toward BR-INT – or – – external braking resistor against ZK+
	7	PE	PE	Connection for protective conductor from the mains
	8	+24 V	+24 V DC ±20%	Supply for control section, holding brake and I/O
	9	GND24 V	GND24 V DC	Reference potential for supply 0V

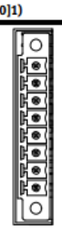
1) Representation of the contact strip on the motor controller CMMP-AS-...-3A-M0

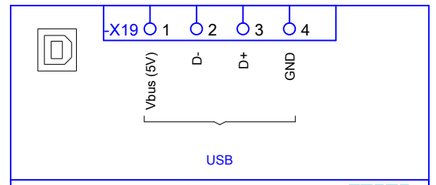


CMMP-AS-1

/21.0

Note : Pin 5 (C1) and Pin 6 (C2) of Connector X40 are shown on the safety page.

[X40]1)	Pin no.	Designation	Value	Specification
	8	0 V	0 V	Reference potential for auxiliary power supply.
	7	24 V	+24 V DC	Output for auxiliary power supply (24 V DC logic supply of the motor controller brought out).
	6	C2	–	Feedback contact for the status "STO" on an external controller.
	5	C1		
	4	0V-B	0V	Reference potential for STO-B.
	3	STO-B	0 V / 24 V	Control port B for the function STO.
	2	0V-A	0 V	Reference potential for STO-A.
	1	STO-A	0V / 24V	Control port A for the function STO.

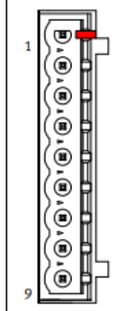


CMMP-AS-1

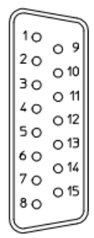
/21.0

Project status		xxx			FESTO CORPORATION		CMMP-AS-1:X9,X40,X19	EN &EFS
00A.	12.07.2022	ca0zfa	Date	19.11.2021 CA0ZFA				= A1
1	01.02.2022	ca0zfa	Edit by	12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE		FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	+ O1
			Appr.				Productionorder: 001330719396	Pg. 21 / Pg. 60
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU				DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

[X6]1)	Pin no.	Designation	Value	Specification
	1	Br-	0 V brake	Holding brake (motor), signal level dependent on switching status, high-side/low-side switch
	2	BR+	24 V brake	
	3	PE	PE	Cable shield for the holding brake and the temperature sensor (with Festo cables: n.c.)
	4	-MTdig	GND	Motor temperature sensor, N/C contact, N/O contact, PTC, KTY ...
	5	+MTdig	+3.3 V 5 mA	
	6	PE	PE	Protective earth conductor from the motor
	7	W	Technical data ➔ Tab. A.9	Connection of the three motor phases
	8	V		
	9	U		

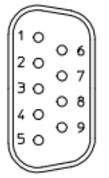
1) Representation of the plug on the device of the motor controller CMMP-AS-...-3A-M0

[X2B]	Pin no.		Designation	Value	Specification
	1		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...
		9	U_SENS+	5 V ... 12 V R_i ≈ 1 kΩ	Sensor cable for the encoder supply
	2		U_SENS-		
		10	US	5 V/12 V ±10% I_{max} = 300 mA	Operating voltage for high-resolution incremental encoder
	3		GND	0V	Reference potential for encoder supply and motor temperature sensor
		11	–		
	4		–		
		12	DATA	5 V_{SS} R_i ≈ 120 Ω	Bidirectional RS485 data cable (differential)
	5		DATA#		
		13	SCLK	5 V_{SS} R_i ≈ 120 Ω	RS485 clock output (differential)
	6		SCLK#		
		14	COS_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	COSINE tracking signal (differential) from high-resolution incremental encoder
	7		COS_Z0 1)#		
		15	SIN_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	SINE tracking signal (differential) from high-resolution incremental encoder
	8		SIN_Z0 1)#		

1) Heidenhain encoder: A=SIN_Z0; B=COS_Z0

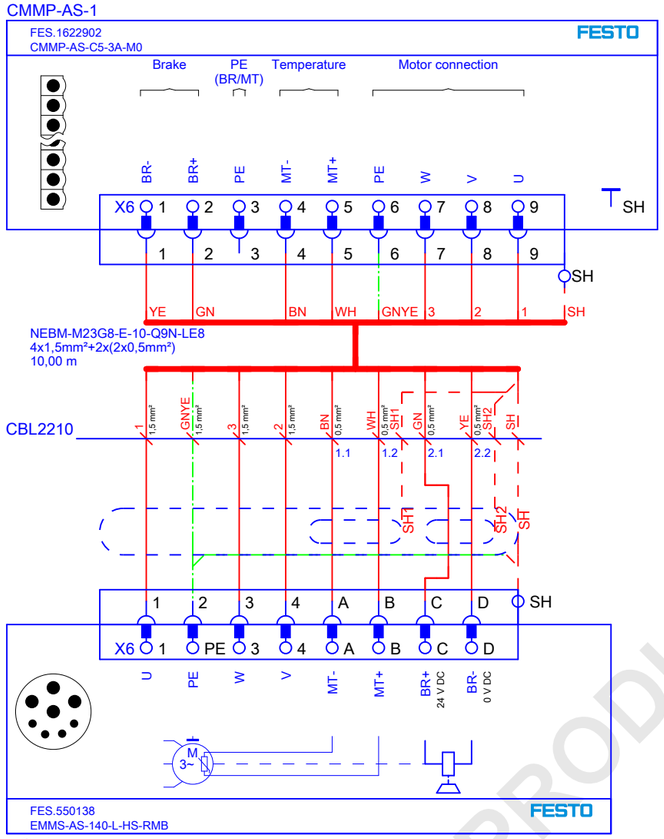
Pin assignment: Incremental encoder with serial interface, e.g. EnDat – optional

Pin assignment [X2A]

[X2A]	Pin no.		Designation	Value	Specification
	1		S2	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	SINE tracking signal, differential
		6	S4		
	2		S1	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	COSINE tracking signal, differential
		7	S3		
	3		AGND	0 V	Screening for signal pairs (inner screening)
		8	MT-	GND	Reference potential for temperature sensor
	4		R1	7 V_{eff} 5-10 kHz I_A ≤ 150 mA_{eff}	Carrier signal for resolver
		9	R2	GND	
	5		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...

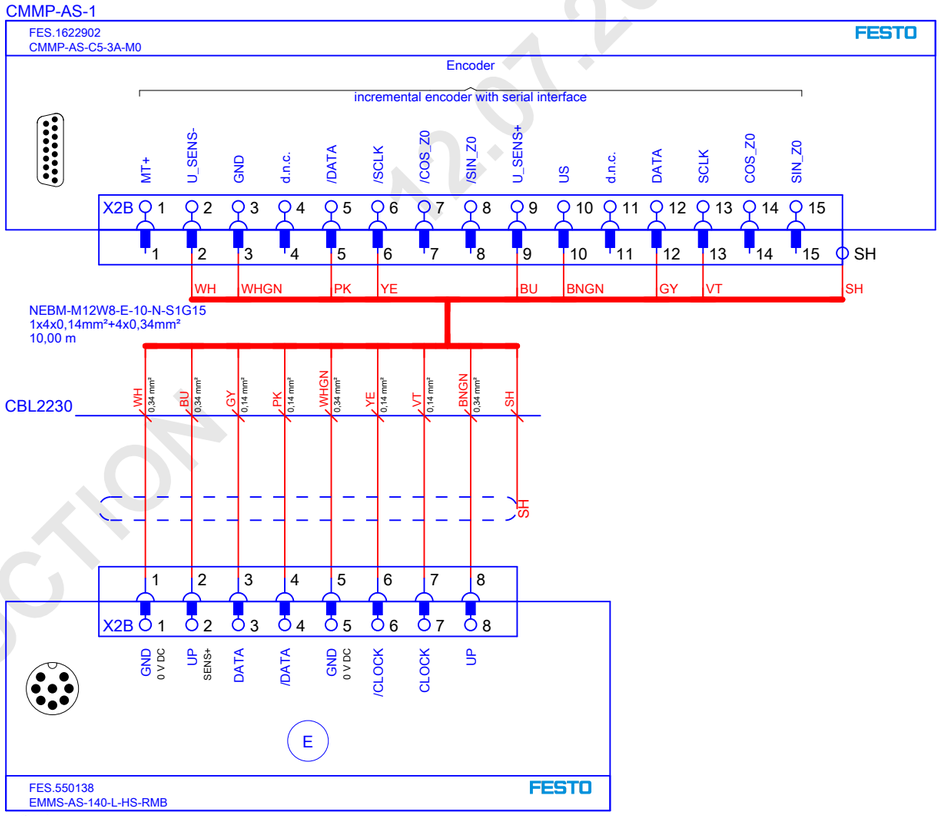
/21.0

CMMP-AS-1



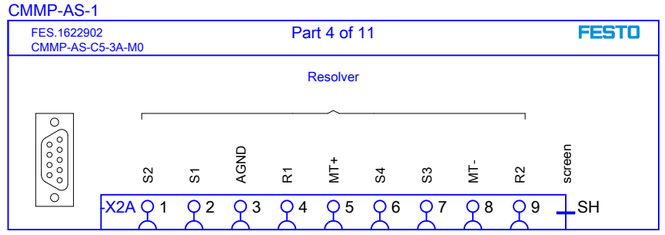
/21.0

CMMP-AS-1



/21.0

CMMP-AS-1



Servo shown in this page to show connection example only

21

23

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

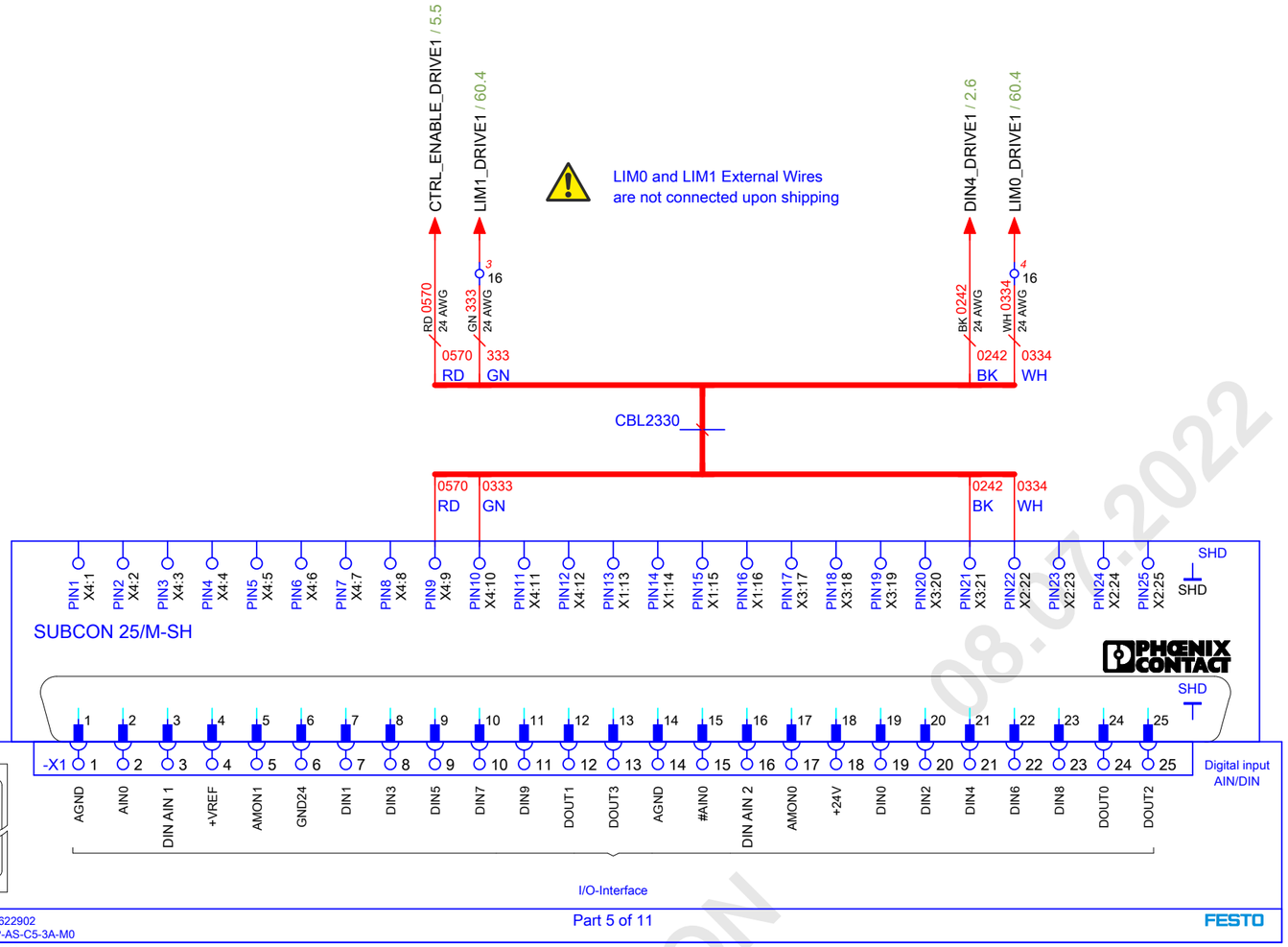
FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-1:X6,X2B,X2A

EN	&EFS
Material no.: 23455210	= A1
	+ O1
Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 22
Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022



CMMP-AS-1

/21.0

[X1]	Pin no.	Designation	Specification
	13	DOUT3	Output freely parameterisable, optionally parameterisable as DIN11
	25	DOUT2	Output freely parameterisable, optionally parameterisable as DIN10
	12	DOUT1	Output freely parameterisable
	24	DOUT0	Controller ready, output permanently assigned
	11	DIN 9	Fieldbus data profile (CiA 402, FHPP), input freely parameterisable
	23	DIN 8	Fieldbus activation communication, input freely parameterisable
	10	DIN7	Limit switch 1 (blocks n < 0), input permanently assigned
	22	DIN6	Limit switch 0 (blocks n > 0), input permanently assigned
	9	DIN5	Controller enable, input permanently assigned
	21	DIN4	End stage enable, input permanently assigned
	8	DIN 3	Fieldbus offset node number bit 3, input freely parameterisable
	20	DIN 2	Fieldbus offset node number bit 2, input freely parameterisable
	7	DIN 1	Fieldbus offset node number bit 1, input freely parameterisable
	19	DIN 0	Fieldbus offset node number bit 0, input freely parameterisable
	6	GND24	Reference potential for digital I/Os
	18	+24 V	24 V output
	5	AOUT1	Analogue output freely parameterisable
	17	AOUT0	Analogue output freely parameterisable
	4	+VREF	Reference output for setpoint potentiometer
	16	DIN13	Fieldbus transmission rate bit 1, optionally parameterisable as AIN2[1)]
	3	DIN12	Fieldbus transmission rate bit 0, optionally parameterisable as AIN1[1)]
	15	#AIN0	Setpoint input 0, differential analogue input
	2	AIN0	
	14	AGND	Reference potential for analogue signals
	1	AGND	Screening for analogue signals, AGND

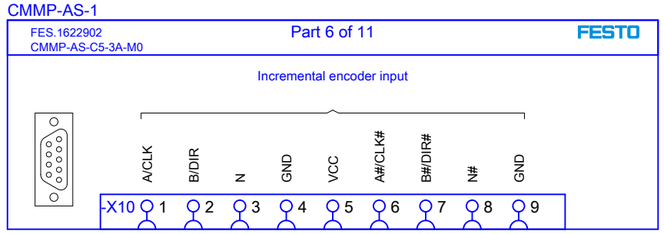
1) Configuration with FCT. Observe not ➔ Abschnitt 4.3.3.

[X10]	Pin no.	Designation	Value	Specification
	1	A/CLK/CW	5 V R_i ≈ 120 Ω	Incremental encoder signal A Stepper motor signal CLK Pulses clockwise CW pos. polarity in accordance with RS422
	6	A#/CLK#/CW#	5 V R_i ≈ 120 Ω	Incremental encoder signal A Step motor signal CLK Pulses clockwise CW neg. polarity in accordance with RS422
	2	B/DIR/CCW	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW pos. polarity in accordance with RS422
	7	B#/DIR#/CCW#	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW neg. polarity in accordance with RS422
	3	N	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N pos. polarity in accordance with RS422
	8	N#	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N neg. polarity in accordance with RS422
4		GND	-	Reference GND for encoder
	9	GND	-	Screening for the connecting cable
5		VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

Tab. 4.21 Pin assignment X10: Incremental encoder input

/21.0

CMMP-AS-1

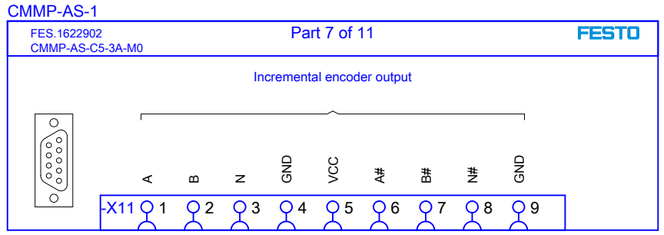


[X11]	Pin no.	Designation	Value	Specification
	1	A	5 V RA ≈ 66 Ω1)	Incremental encoder signal A
	6	A#	5 V RA ≈ 66 Ω1)	Incremental encoder signal A#
	2	B	5 V RA ≈ 66 Ω1)	Incremental encoder signal B
	7	B#	5 V RA ≈ 66 Ω1)	Incremental encoder signal B#
	3	N	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N
	8	N#	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N#
	4	GND	-	Reference GND for encoder
	9	GND	-	Screening for connecting cable
	5	VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

1) The specification for RA designates the differential output resistance

/21.0

CMMP-AS-1



Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-1:X1,X10,X11

EN &EFS

Material no.: 23455210 = A1 + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 23

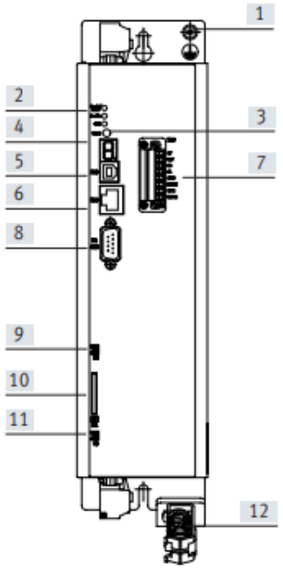
Productionorder: 001330719396 Pg. 60

DIN A3 13.07.2022

1	2	3	4	5	6	7	8	9	10

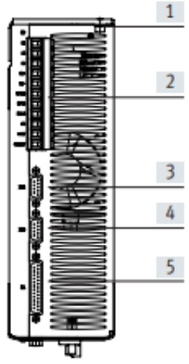
View of motor controller

CMMP-AS-...-M0



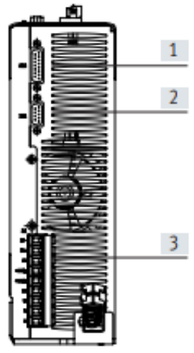
[1] PE connection
[2] LEDs
[3] Reset button
[4] Seven-segment display
[5] X19 USB interface
[6] X18 Ethernet interface
[7] X40 digital I/O interface for controlling the STO function
[8] X4 CANopen interface
[9] Activation of CANopen terminating resistor
[10] SD/MMC card slot
[11] Activation of firmware download
[12] Shield connection

From above



[1] PE connection
[2] X9 power supply
[3] X11 incremental encoder interface (output)
[4] X10 incremental encoder interface (input)
[5] X1 I/O interface

From underneath



[1] X2B encoder connection
[2] X2A resolver connection
[3] X6 motor connection

Project status		xxx		FESTO CORPORATION	
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

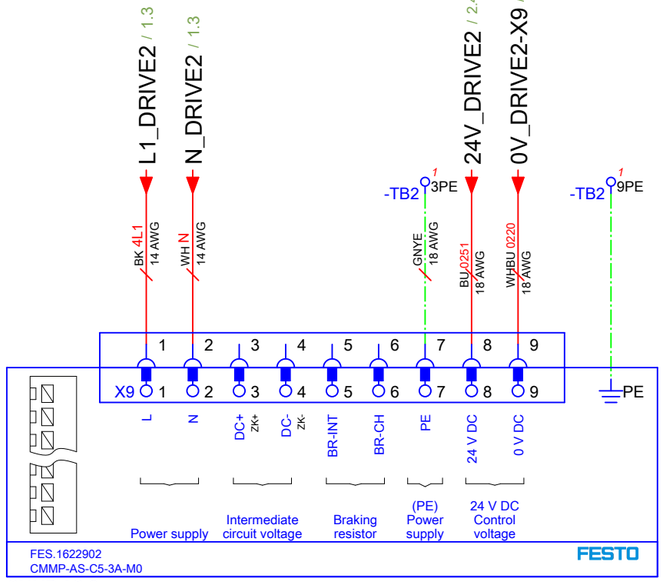
FMCP-3P-4CMMP-CPXE

FESTO

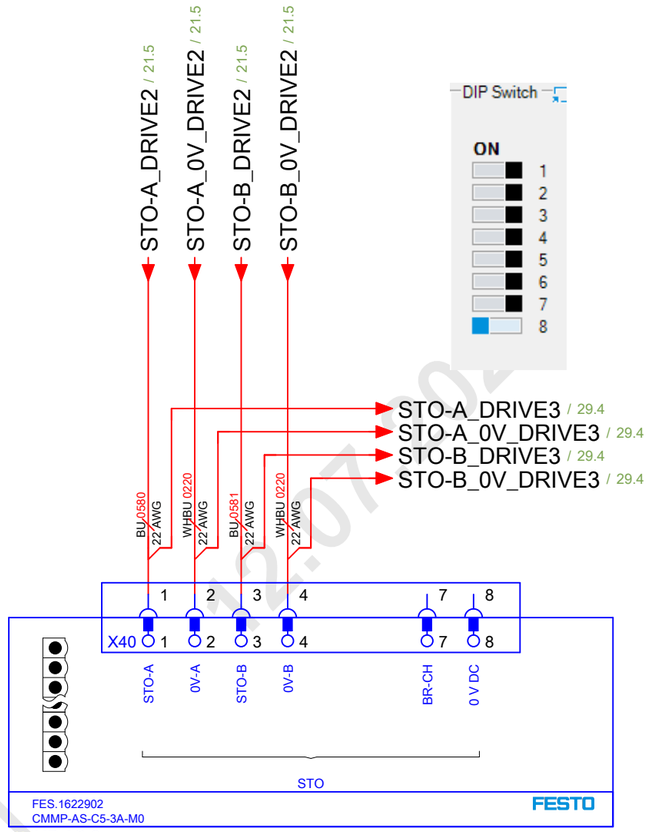
Overview

	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	24
Productionorder:	001330719396	Pg.	60

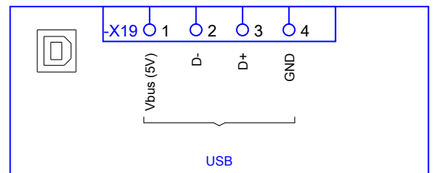
DIN A3 13.07.2022



CMMP-AS-2
/25.3
/25.6
/26.0
/26.3
/26.7
/27.0
/27.6
/27.6
/50.2

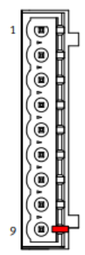


CMMP-AS-2
/25.0



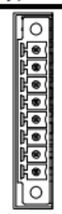
CMMP-AS-2
/25.0

4.8.2 Pin assignment [X9] – single-phase

[X9]1)	Pin no.	Designation	Value	Specification
	1	L	100 ... 230 V AC ±10% 50 ... 60 Hz	Mains phase
	2	N		Mains neutral conductor (reference potential)
	3	ZK+	60 ... 380 V DC	Alternative supply: Positive intermediate circuit voltage
	4	ZK-	GND_ZK	Alternative supply: Negative intermediate circuit voltage
	5	BR-INT	< 460 V DC	Internal braking resistor connection (bridge after BR-CH when using the internal resistor).
	6	BR-CH	< 460 V DC	Brake chopper connection for – internal braking resistor toward BR-INT – or – – external braking resistor against ZK+
	7	PE	PE	Connection for protective conductor from the mains
	8	+24 V	+24 V DC ±20%	Supply for control section, holding brake and I/O
	9	GND24 V	GND24 V DC	Reference potential for supply 0V

1) Representation of the contact strip on the motor controller CMMP-AS-...-3A-M0

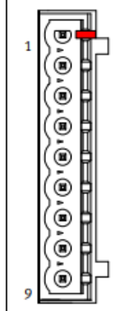
Note : Pin 5 (C1) and Pin 6 (C2) of Connector X40 are shown on the safety page.

[X40]1)	Pin no.	Designation	Value	Specification
	8	0 V	0 V	Reference potential for auxiliary power supply.
	7	24 V	+24 V DC	Output for auxiliary power supply (24 V DC logic supply of the motor controller brought out).
	6	C2	–	Feedback contact for the status "STO" on an external controller.
	5	C1		
	4	0V-B	0V	Reference potential for STO-B.
	3	STO-B	0 V / 24 V	Control port B for the function STO.
	2	0V-A	0 V	Reference potential for STO-A.
	1	STO-A	0V / 24V	Control port A for the function STO.

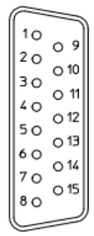
Project status		xxx			FESTO CORPORATION		CMMP-AS-2:X9,X40,X19
00A.	12.07.2022	ca0zfa	Date	19.11.2021 CA0ZFA			EN &EFS
			Edit by	12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE		= A1
			Appr.				Material no.: 23455210 + O1
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU			Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 25
							Productionorder: 001330719396 Pg. 60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

[X6]1)	Pin no.	Designation	Value	Specification
	1	Br-	0 V brake	Holding brake (motor), signal level dependent on switching status, high-side/low-side switch
	2	BR+	24 V brake	
	3	PE	PE	Cable shield for the holding brake and the temperature sensor (with Festo cables: n.c.)
	4	-MTdig	GND	Motor temperature sensor, N/C contact, N/O contact, PTC, KTY ...
	5	+MTdig	+3.3 V 5 mA	
	6	PE	PE	Protective earth conductor from the motor
	7	W	Technical data ➔ Tab. A.9	Connection of the three motor phases
	8	V		
	9	U		

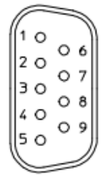
1) Representation of the plug on the device of the motor controller CMMP-AS-...-3A-M0

[X2B]	Pin no.		Designation	Value	Specification
	1		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...
		9	U_SENS+	5 V ... 12 V R_i ≈ 1 kΩ	Sensor cable for the encoder supply
	2		U_SENS-		
		10	US	5 V/12 V ±10% I_{max} = 300 mA	Operating voltage for high-resolution incremental encoder
	3		GND	0V	Reference potential for encoder supply and motor temperature sensor
		11	–		
	4		–		
		12	DATA	5 V_{SS} R_i ≈ 120 Ω	Bidirectional RS485 data cable (differential)
	5		DATA#		
		13	SCLK	5 V_{SS} R_i ≈ 120 Ω	RS485 clock output (differential)
	6		SCLK#		
		14	COS_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	COSINE tracking signal (differential) from high-resolution incremental encoder
	7		COS_Z0 1)#		
		15	SIN_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	SINE tracking signal (differential) from high-resolution incremental encoder
	8		SIN_Z0 1)#		

1) Heidenhain encoder: A=SIN_Z0; B=COS_Z0

Pin assignment: Incremental encoder with serial interface, e.g. EnDat – optional

Pin assignment [X2A]

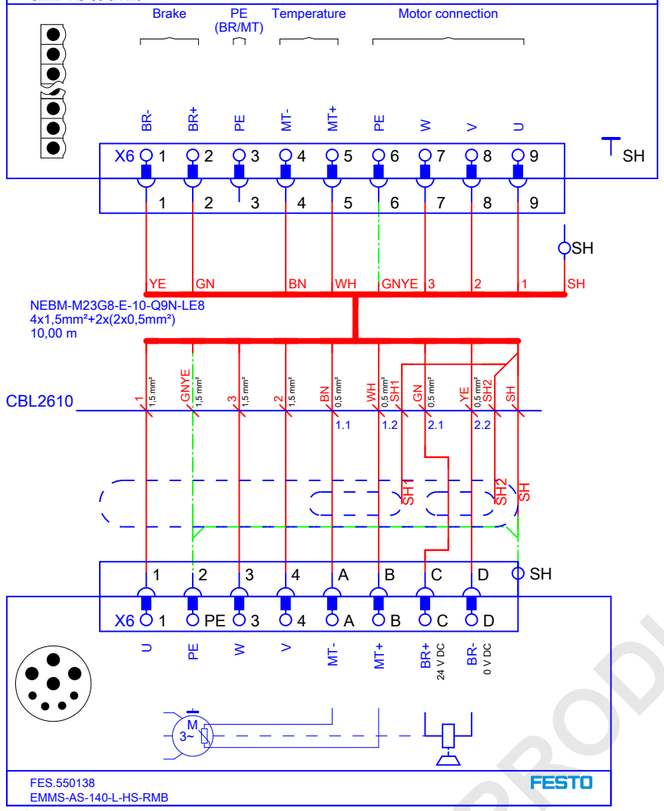
[X2A]	Pin no.		Designation	Value	Specification
	1		S2	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	SINE tracking signal, differential
		6	S4		
	2		S1	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	COSINE tracking signal, differential
		7	S3		
	3		AGND	0 V	Screening for signal pairs (inner screening)
		8	MT-	GND	Reference potential for temperature sensor
	4		R1	7 V_{eff} 5-10 kHz I_A ≤ 150 mA_{eff}	Carrier signal for resolver
		9	R2	GND	
	5		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...

/25.0

CMMP-AS-2

FES.1622902
CMMP-AS-C5-3A-M0

FESTO



FES.550138
EMMS-AS-140-L-HS-RMB

FESTO

MOT2

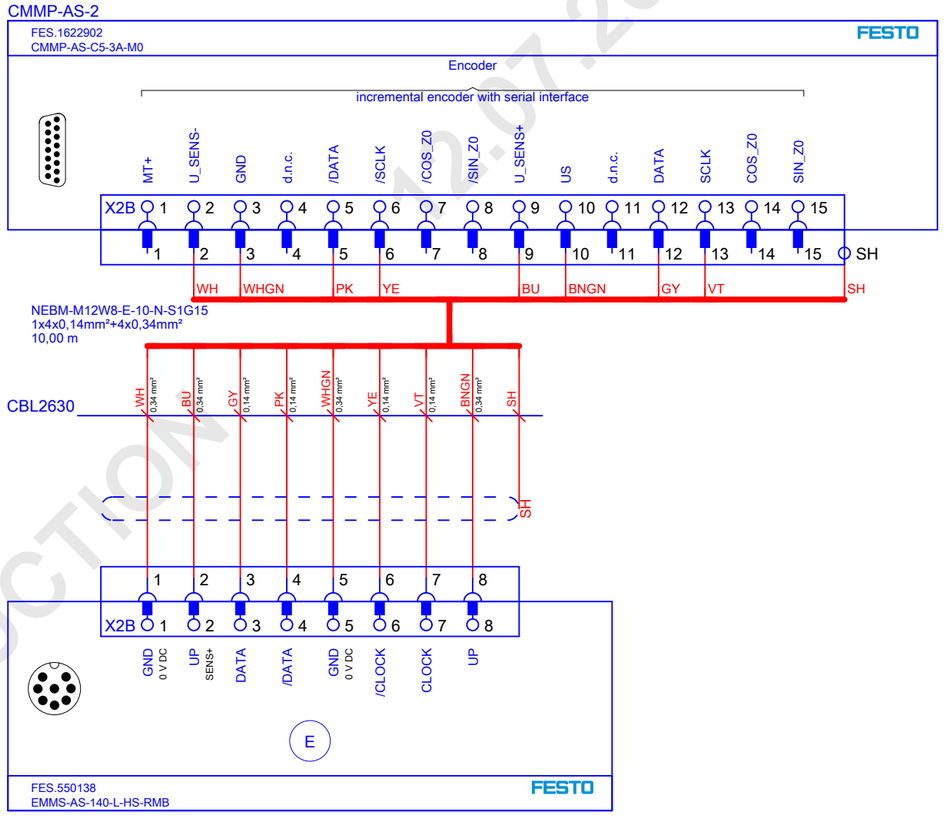
/26.3

/25.0

CMMP-AS-2

FES.1622902
CMMP-AS-C5-3A-M0

FESTO



FES.550138
EMMS-AS-140-L-HS-RMB

FESTO

MOT2

/26.0

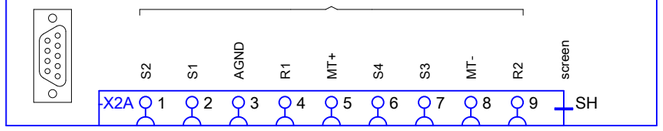
/25.0

CMMP-AS-2

FES.1622902
CMMP-AS-C5-3A-M0

Part 4 of 11

FESTO



Servo shown in this page to show connection example only

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

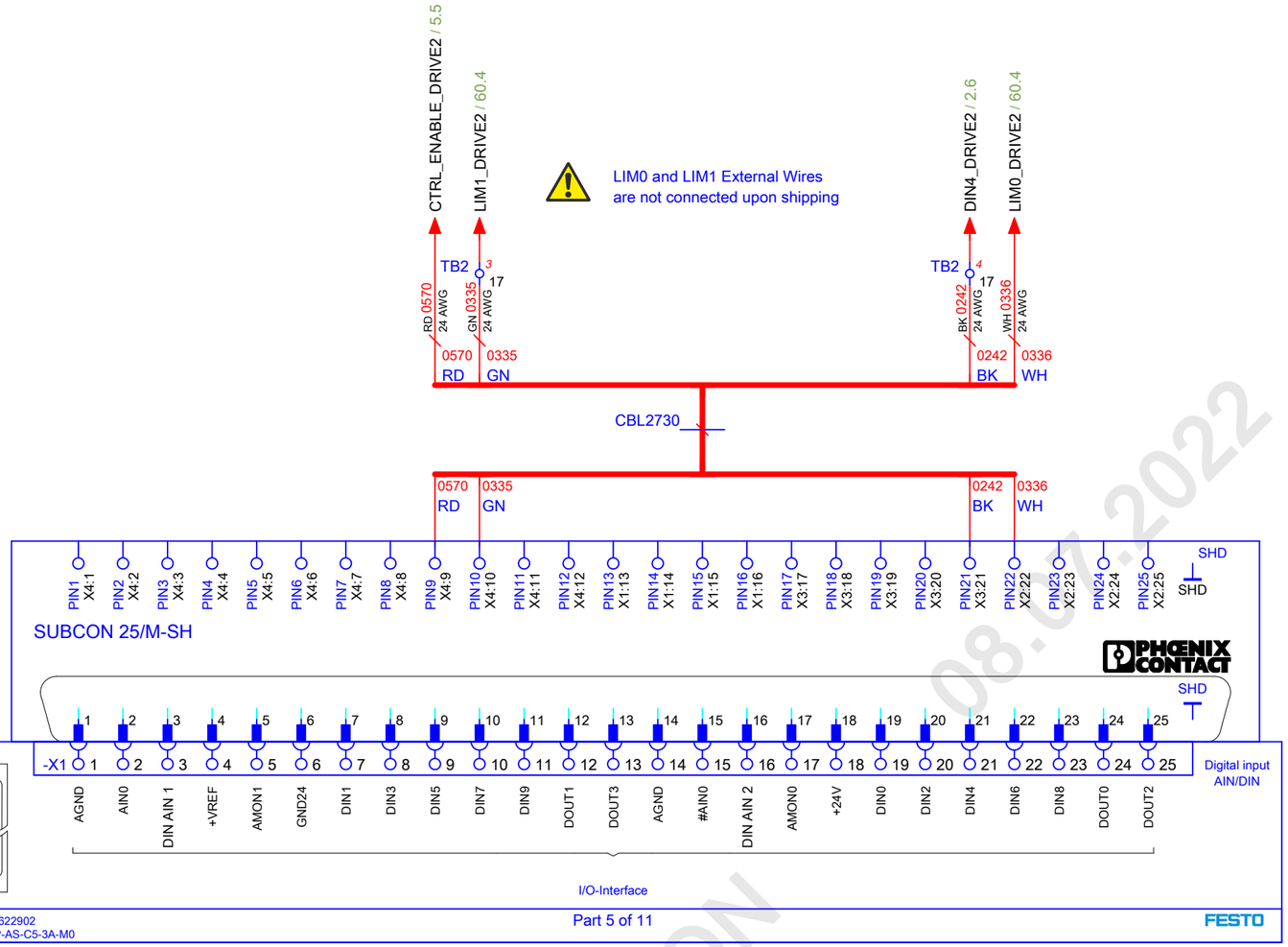
FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-2:X6,X2B,X2A

	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	26
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022



CMMP-AS-2

/25.0

[X1]	Pin no.	Designation	Specification
	13	DOUT3	Output freely parameterisable, optionally parameterisable as DIN11
	25	DOUT2	Output freely parameterisable, optionally parameterisable as DIN10
	12	DOUT1	Output freely parameterisable
	24	DOUT0	Controller ready, output permanently assigned
	11	DIN 9	Fieldbus data profile (CiA 402, FHPP), input freely parameterisable
	23	DIN 8	Fieldbus activation communication, input freely parameterisable
	10	DIN7	Limit switch 1 (blocks n < 0), input permanently assigned
	22	DIN6	Limit switch 0 (blocks n > 0), input permanently assigned
	9	DIN5	Controller enable, input permanently assigned
	21	DIN4	End stage enable, input permanently assigned
	8	DIN 3	Fieldbus offset node number bit 3, input freely parameterisable
	20	DIN 2	Fieldbus offset node number bit 2, input freely parameterisable
	7	DIN 1	Fieldbus offset node number bit 1, input freely parameterisable
	19	DIN 0	Fieldbus offset node number bit 0, input freely parameterisable
	6	GND24	Reference potential for digital I/Os
	18	+24 V	24 V output
	5	AOUT1	Analogue output freely parameterisable
	17	AOUT0	Analogue output freely parameterisable
	4	+VREF	Reference output for setpoint potentiometer
	16	DIN13	Fieldbus transmission rate bit 1, optionally parameterisable as AIN2[1)]
	3	DIN12	Fieldbus transmission rate bit 0, optionally parameterisable as AIN1[1)]
	15	#AIN0	Setpoint input 0, differential analogue input
	2	AIN0	
	14	AGND	Reference potential for analogue signals
	1	AGND	Screening for analogue signals, AGND

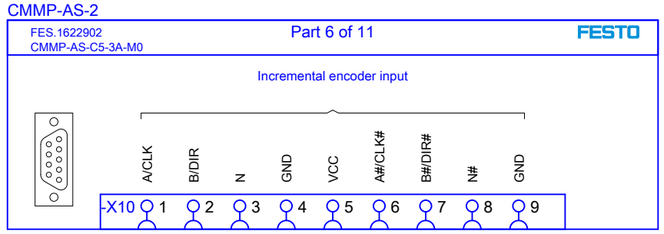
1) Configuration with FCT. Observe not ➔ Abschnitt 4.3.3.

[X10]	Pin no.	Designation	Value	Specification
	1	A/CLK/CW	5 V R_i ≈ 120 Ω	Incremental encoder signal A Stepper motor signal CLK Pulses clockwise CW pos. polarity in accordance with RS422
	6	A#/CLK#/CW#	5 V R_i ≈ 120 Ω	Incremental encoder signal A Step motor signal CLK Pulses clockwise CW neg. polarity in accordance with RS422
	2	B/DIR/CCW	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW pos. polarity in accordance with RS422
	7	B#/DIR#/CCW#	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW neg. polarity in accordance with RS422
	3	N	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N pos. polarity in accordance with RS422
	8	N#	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N neg. polarity in accordance with RS422
4		GND	-	Reference GND for encoder
	9	GND	-	Screening for the connecting cable
5		VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

Tab. 4.21 Pin assignment X10: Incremental encoder input

/25.0

CMMP-AS-2

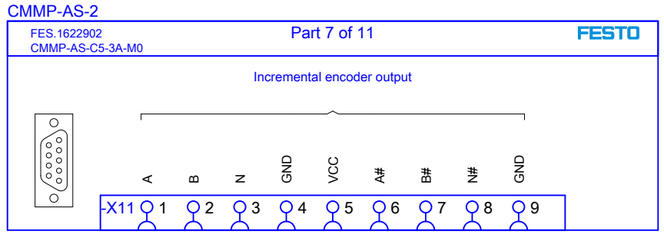


[X11]	Pin no.	Designation	Value	Specification
	1	A	5 V RA ≈ 66 Ω1)	Incremental encoder signal A
	6	A#	5 V RA ≈ 66 Ω1)	Incremental encoder signal A#
	2	B	5 V RA ≈ 66 Ω1)	Incremental encoder signal B
	7	B#	5 V RA ≈ 66 Ω1)	Incremental encoder signal B#
3		N	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N
	8	N#	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N#
4		GND	-	Reference GND for encoder
	9	GND	-	Screening for connecting cable
5		VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

1) The specification for RA designates the differential output resistance

/25.0

CMMP-AS-2



Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-2:X1,X10,X11

EN &EFS

Material no.: 23455210 = A1 + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 27

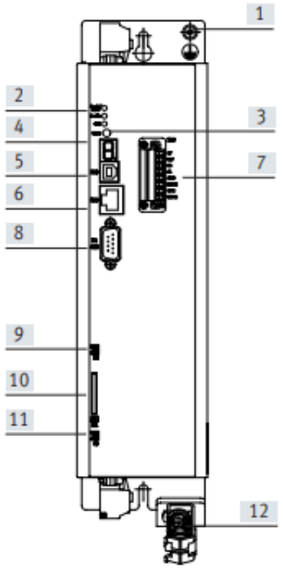
Productionorder: 001330719396 Pg. 60

DIN A3 13.07.2022

1	2	3	4	5	6	7	8	9	10

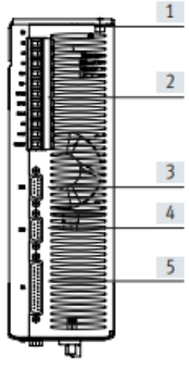
View of motor controller

CMMP-AS-...-M0



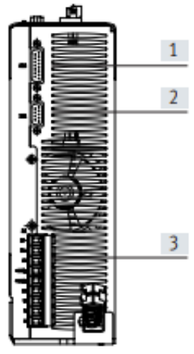
[1] PE connection
[2] LEDs
[3] Reset button
[4] Seven-segment display
[5] X19 USB interface
[6] X18 Ethernet interface
[7] X40 digital I/O interface for controlling the STO function
[8] X4 CANopen interface
[9] Activation of CANopen terminating resistor
[10] SD/MMC card slot
[11] Activation of firmware download
[12] Shield connection

From above



[1] PE connection
[2] X9 power supply
[3] X11 incremental encoder interface (output)
[4] X10 incremental encoder interface (input)
[5] X1 I/O interface

From underneath



[1] X2B encoder connection
[2] X2A resolver connection
[3] X6 motor connection

Project status		xxx		FESTO CORPORATION	
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

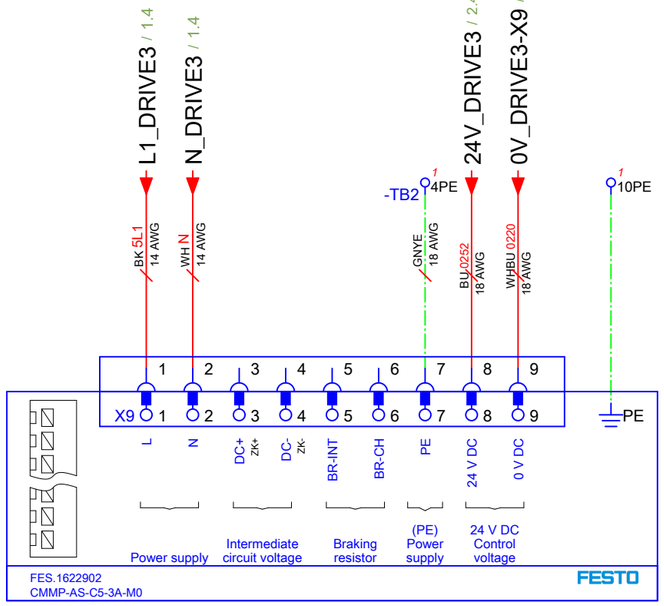
FMCP-3P-4CMMP-CPXE

FESTO

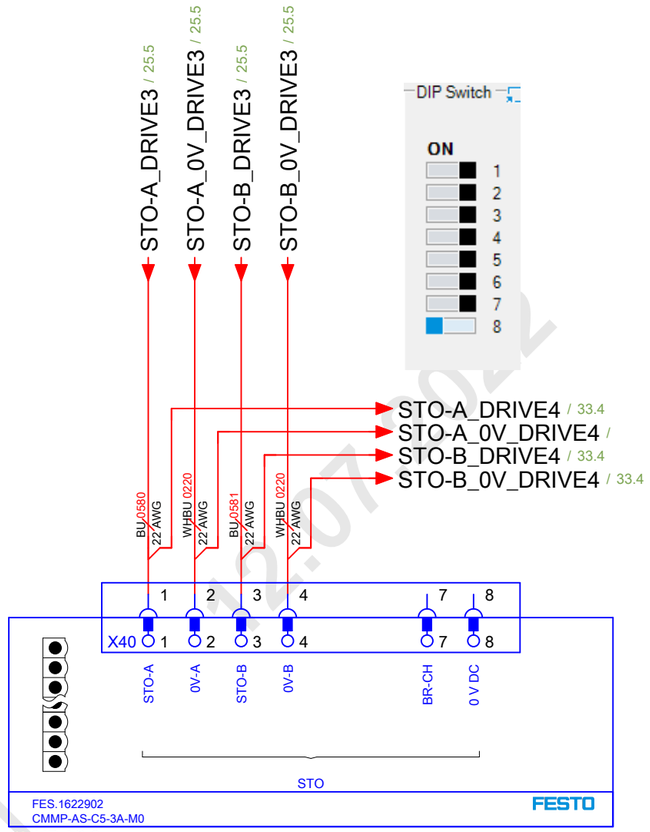
Overview

	EN	&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	28
Productionorder:	001330719396	Pg.	60

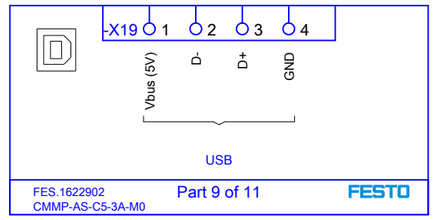
DIN A3 13.07.2022



CMMP-AS-3
/29.3
/29.6
/30.0
/30.3
/31.0
/31.6
/31.6
/50.4

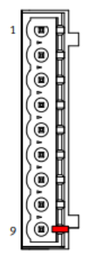


CMMP-AS-3
/29.0

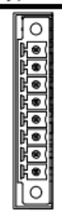


CMMP-AS-3
/29.0

4.8.2 Pin assignment [X9] – single-phase

[X9]1)	Pin no.	Designation	Value	Specification
	1	L	100 ... 230 V AC ±10% 50 ... 60 Hz	Mains phase
	2	N		Mains neutral conductor (reference potential)
	3	ZK+	60 ... 380 V DC	Alternative supply: Positive intermediate circuit voltage
	4	ZK-	GND_ZK	Alternative supply: Negative intermediate circuit voltage
	5	BR-INT	< 460 V DC	Internal braking resistor connection (bridge after BR-CH when using the internal resistor).
	6	BR-CH	< 460 V DC	Brake chopper connection for – internal braking resistor toward BR-INT – or – – external braking resistor against ZK+
	7	PE	PE	Connection for protective conductor from the mains
	8	+24 V	+24 V DC ±20%	Supply for control section, holding brake and I/O
	9	GND24 V	GND24 V DC	Reference potential for supply 0V

1) Representation of the contact strip on the motor controller CMMP-AS-...-3A-M0

[X40]1)	Pin no.	Designation	Value	Specification
	8	0 V	0 V	Reference potential for auxiliary power supply.
	7	24 V	+24 V DC	Output for auxiliary power supply (24 V DC logic supply of the motor controller brought out).
	6	C2	–	Feedback contact for the status "STO" on an external controller.
	5	C1		
	4	0V-B	0V	Reference potential for STO-B.
	3	STO-B	0 V / 24 V	Control port B for the function STO.
	2	0V-A	0 V	Reference potential for STO-A.
	1	STO-A	0V / 24V	Control port A for the function STO.

Note : Pin 5 (C1) and Pin 6 (C2) of Connector X40 are shown on the safety page.

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

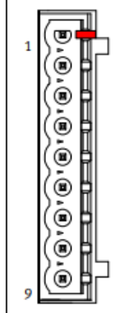
FESTO

CMMP-AS-3:X9,X40,X19

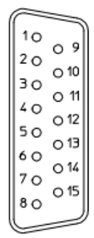
EN	&EFS
Material no.: 23455210	= A1
	+ O1
Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 29
Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

[X6]1)	Pin no.	Designation	Value	Specification
	1	Br-	0 V brake	Holding brake (motor), signal level dependent on switching status, high-side/low-side switch
	2	BR+	24 V brake	
	3	PE	PE	Cable shield for the holding brake and the temperature sensor (with Festo cables: n.c.)
	4	-MTdig	GND	Motor temperature sensor, N/C contact, N/O contact, PTC, KTY ...
	5	+MTdig	+3.3 V 5 mA	
	6	PE	PE	Protective earth conductor from the motor
	7	W	Technical data ➔ Tab. A.9	Connection of the three motor phases
	8	V		
	9	U		

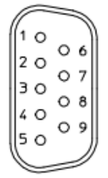
1) Representation of the plug on the device of the motor controller CMMP-AS-...-3A-M0

[X2B]	Pin no.		Designation	Value	Specification
	1		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...
		9	U_SENS+	5 V ... 12 V R_i ≈ 1 kΩ	Sensor cable for the encoder supply
	2		U_SENS-		
		10	US	5 V/12 V ±10% I_{max} = 300 mA	Operating voltage for high-resolution incremental encoder
	3		GND	0V	Reference potential for encoder supply and motor temperature sensor
		11	–		
	4		–		
		12	DATA	5 V_{SS} R_i ≈ 120 Ω	Bidirectional RS485 data cable (differential)
	5		DATA#		
		13	SCLK	5 V_{SS} R_i ≈ 120 Ω	RS485 clock output (differential)
	6		SCLK#		
		14	COS_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	COSINE tracking signal (differential) from high-resolution incremental encoder
	7		COS_Z0 1)#		
		15	SIN_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	SINE tracking signal (differential) from high-resolution incremental encoder
	8		SIN_Z0 1)#		

1) Heidenhain encoder: A=SIN_Z0; B=COS_Z0

Pin assignment: Incremental encoder with serial interface. e.g. EnDat – optional

Pin assignment [X2A]

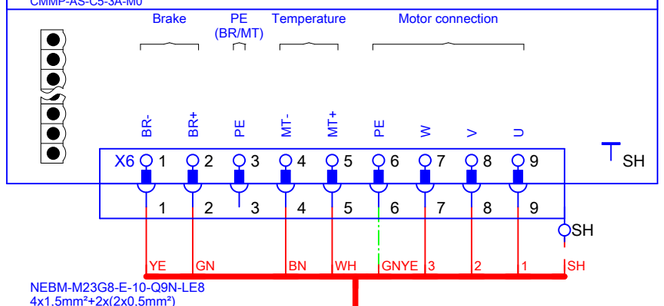
[X2A]	Pin no.		Designation	Value	Specification
	1		S2	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	SINE tracking signal, differential
		6	S4		
	2		S1	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	COSINE tracking signal, differential
		7	S3		
	3		AGND	0 V	Screening for signal pairs (inner screening)
		8	MT-	GND	Reference potential for temperature sensor
	4		R1	7 V_{eff} 5-10 kHz I_A ≤ 150 mA_{eff}	Carrier signal for resolver
		9	R2	GND	
	5		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...

/29.0

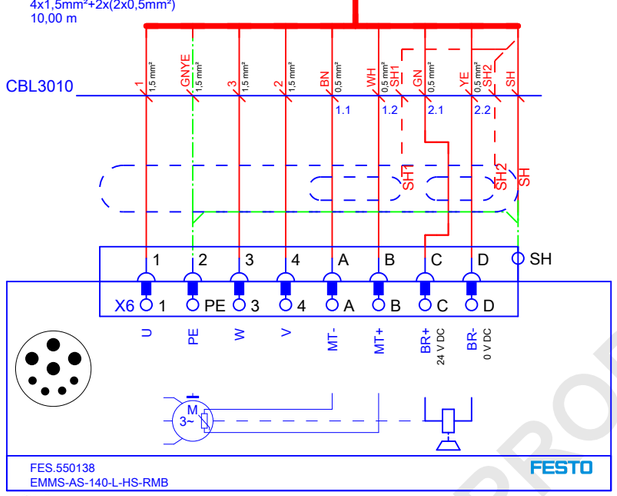
CMMP-AS-3

FES.1622902
CMMP-AS-C5-3A-M0

FESTO



NEBM-M23G8-E-10-Q9N-LE8
4x1,5mm²+2x(2x0,5mm²)
10,00 m



MOT3

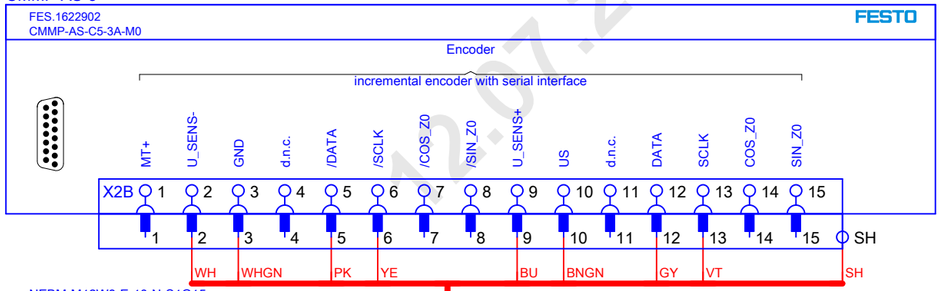
/30.3

/29.0

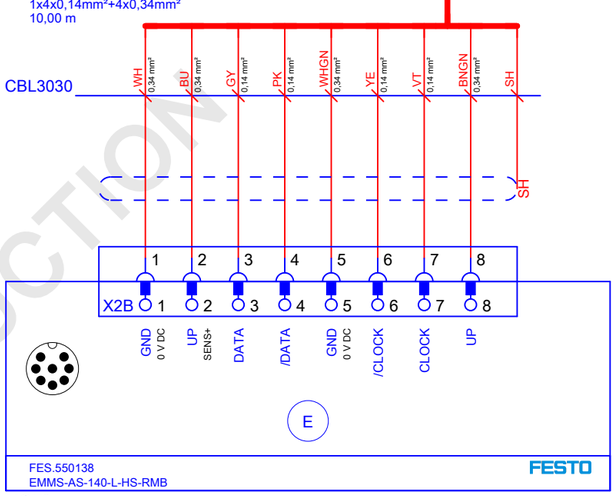
CMMP-AS-3

FES.1622902
CMMP-AS-C5-3A-M0

FESTO



NEBM-M12W8-E-10-N-S1G15
1x4x0,14mm²+4x0,34mm²
10,00 m



MOT3

/30.0

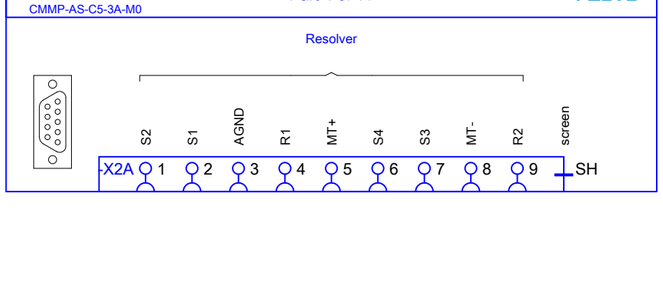
/21.0

CMMP-AS-1

FES.1622902
CMMP-AS-C5-3A-M0

Part 4 of 11

FESTO



Servo shown in this page to show connection example only

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

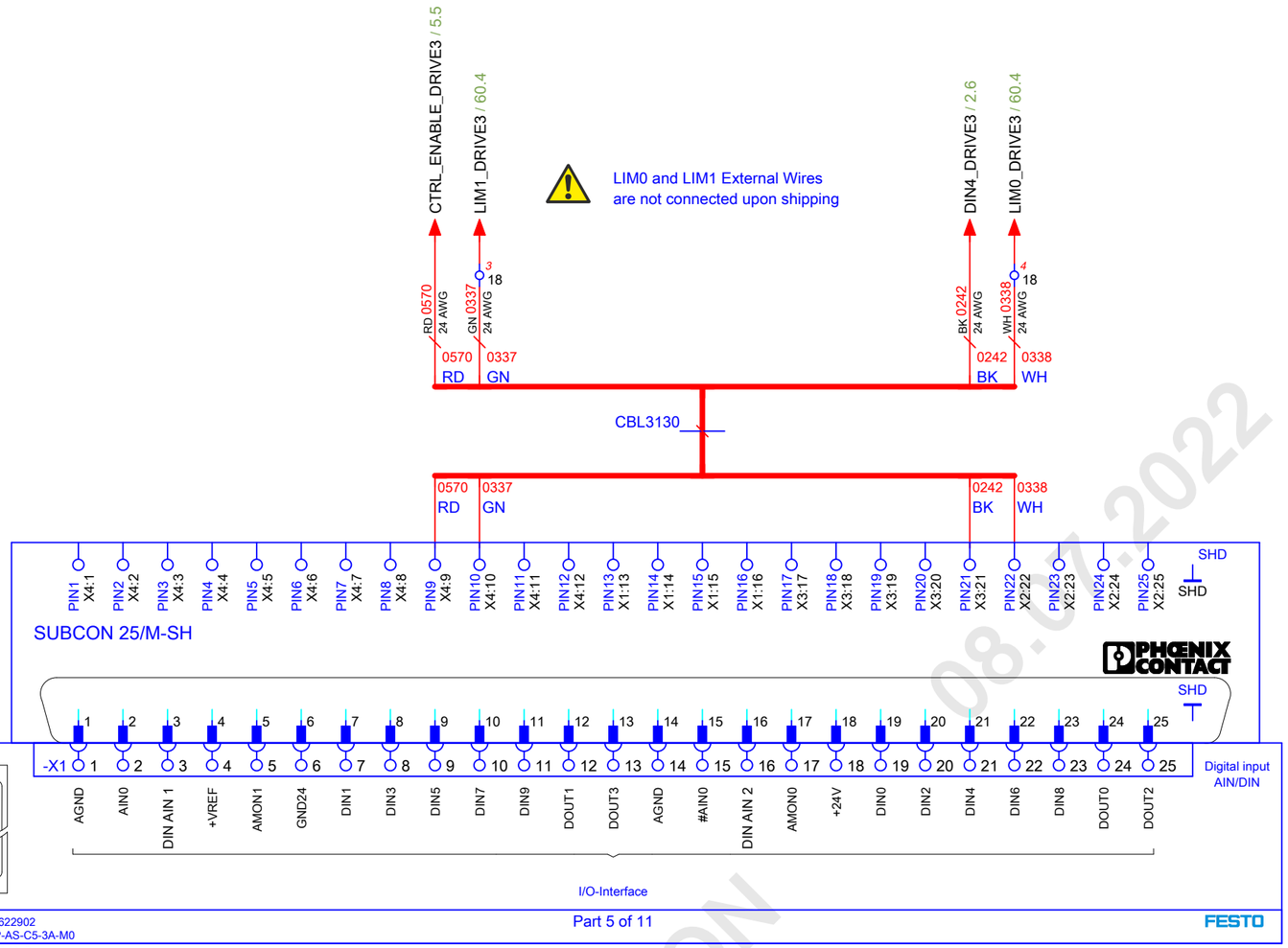
FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-3:X6,X2B,X2A

EN	&EFS
Material no.: 23455210	= A1
	+ O1
Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 30
Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022



CMMP-AS-3

/29.0

[X1]	Pin no.	Designation	Specification
	13	DOUT3	Output freely parameterisable, optionally parameterisable as DIN11
	25	DOUT2	Output freely parameterisable, optionally parameterisable as DIN10
	12	DOUT1	Output freely parameterisable
	24	DOUT0	Controller ready, output permanently assigned
	11	DIN 9	Fieldbus data profile (CiA 402, FHPP), input freely parameterisable
	23	DIN 8	Fieldbus activation communication, input freely parameterisable
	10	DIN7	Limit switch 1 (blocks n < 0), input permanently assigned
	22	DIN6	Limit switch 0 (blocks n > 0), input permanently assigned
	9	DIN5	Controller enable, input permanently assigned
	21	DIN4	End stage enable, input permanently assigned
	8	DIN 3	Fieldbus offset node number bit 3, input freely parameterisable
	20	DIN 2	Fieldbus offset node number bit 2, input freely parameterisable
	7	DIN 1	Fieldbus offset node number bit 1, input freely parameterisable
	19	DIN 0	Fieldbus offset node number bit 0, input freely parameterisable
	6	GND24	Reference potential for digital I/Os
	18	+24 V	24 V output
	5	AOUT1	Analogue output freely parameterisable
	17	AOUT0	Analogue output freely parameterisable
	4	+VREF	Reference output for setpoint potentiometer
	16	DIN13	Fieldbus transmission rate bit 1, optionally parameterisable as AIN2[1]
	3	DIN12	Fieldbus transmission rate bit 0, optionally parameterisable as AIN1[1]
	15	#AIN0	Setpoint input 0, differential analogue input
	2	AIN0	
	14	AGND	Reference potential for analogue signals
	1	AGND	Screening for analogue signals, AGND

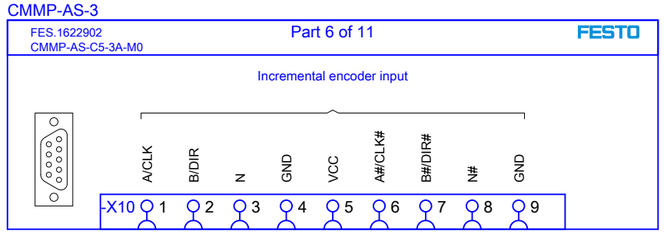
1) Configuration with FCT. Observe not → Abschnitt 4.3.3.

[X10]	Pin no.	Designation	Value	Specification
	1	A/CLK/CW	5 V R_i ≈ 120 Ω	Incremental encoder signal A Stepper motor signal CLK Pulses clockwise CW pos. polarity in accordance with RS422
	6	A#/CLK#/CW#	5 V R_i ≈ 120 Ω	Incremental encoder signal A Step motor signal CLK Pulses clockwise CW neg. polarity in accordance with RS422
	2	B/DIR/CCW	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW pos. polarity in accordance with RS422
	7	B#/DIR#/CCW#	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW neg. polarity in accordance with RS422
	3	N	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N pos. polarity in accordance with RS422
	8	N#	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N neg. polarity in accordance with RS422
4		GND	-	Reference GND for encoder
	9	GND	-	Screening for the connecting cable
5		VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

Tab. 4.21 Pin assignment X10: Incremental encoder input

/29.0

CMMP-AS-3

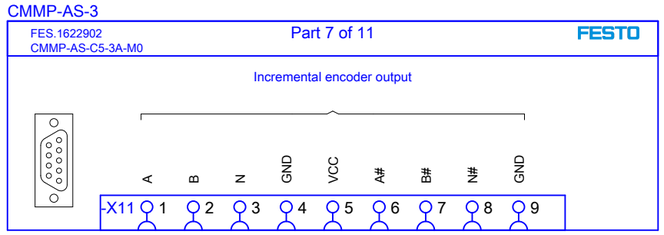


[X11]	Pin no.	Designation	Value	Specification
	1	A	5 V RA ≈ 66 Ω1)	Incremental encoder signal A
	6	A#	5 V RA ≈ 66 Ω1)	Incremental encoder signal A#
	2	B	5 V RA ≈ 66 Ω1)	Incremental encoder signal B
	7	B#	5 V RA ≈ 66 Ω1)	Incremental encoder signal B#
	3	N	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N
	8	N#	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N#
	4	GND	-	Reference GND for encoder
	9	GND	-	Screening for connecting cable
	5	VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

1) The specification for RA designates the differential output resistance

/29.0

CMMP-AS-3



Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-3:X1,X10,X11

EN | &EFS

Material no.: 23455210 | = A1 | + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE | Pg. 31

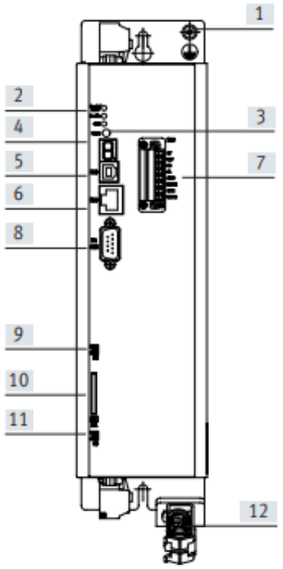
Productionorder: 001330719396 | Pg. 60

DIN A3 13.07.2022

1	2	3	4	5	6	7	8	9	10

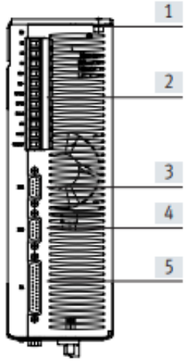
View of motor controller

CMMP-AS-...-M0



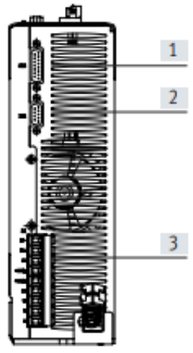
[1] PE connection
[2] LEDs
[3] Reset button
[4] Seven-segment display
[5] X19 USB interface
[6] X18 Ethernet interface
[7] X40 digital I/O interface for controlling the STO function
[8] X4 CANopen interface
[9] Activation of CANopen terminating resistor
[10] SD/MMC card slot
[11] Activation of firmware download
[12] Shield connection

From above



[1] PE connection
[2] X9 power supply
[3] X11 incremental encoder interface (output)
[4] X10 incremental encoder interface (input)
[5] X1 I/O interface

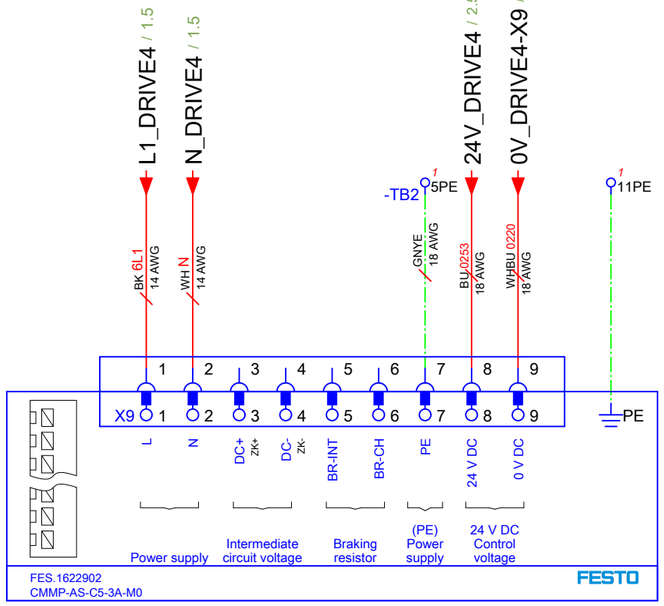
From underneath



[1] X2B encoder connection
[2] X2A resolver connection
[3] X6 motor connection

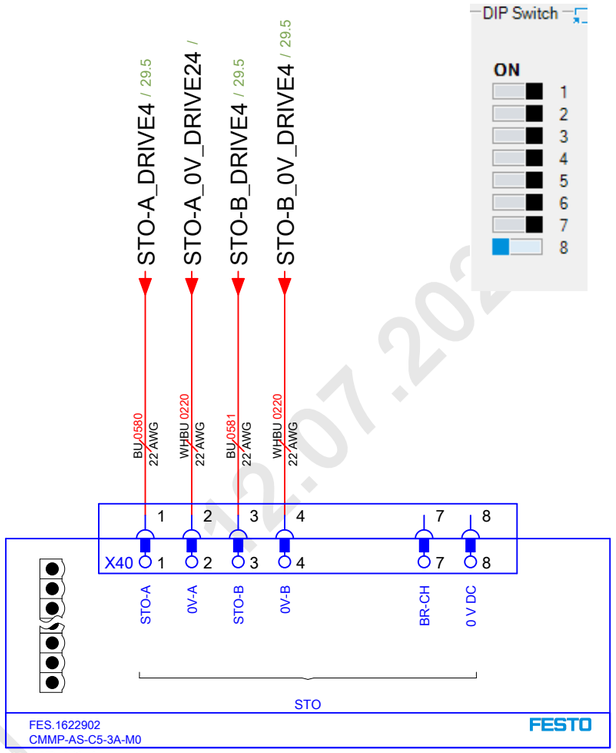
Project status		xxx			FESTO CORPORATION		Overview	EN	&EFS
00A.	12.07.2022	ca0zfa	Date	19.11.2021 CA0ZFA				Material no.: 23455210	= A1
			Edit by	12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE				+ O1
			Appr.					Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 32
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU				Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022



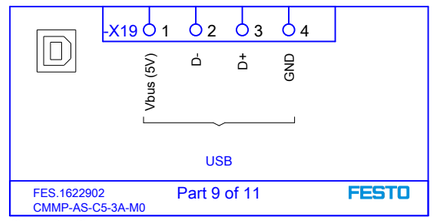
CMMP-AS-4

/33.3
/33.6
/34.0
/34.3
/34.7
/35.6
/35.6
/50.5



CMMP-AS-4

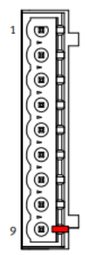
/33.0



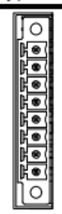
CMMP-AS-4

/33.0

4.8.2 Pin assignment [X9] – single-phase

[X9]1)	Pin no.	Designation	Value	Specification
	1	L	100 ... 230 V AC ±10% 50 ... 60 Hz	Mains phase
	2	N		Mains neutral conductor (reference potential)
	3	ZK+	60 ... 380 V DC	Alternative supply: Positive intermediate circuit voltage
	4	ZK-	GND_ZK	Alternative supply: Negative intermediate circuit voltage
	5	BR-INT	< 460 V DC	Internal braking resistor connection (bridge after BR-CH when using the internal resistor).
	6	BR-CH	< 460 V DC	Brake chopper connection for – internal braking resistor toward BR-INT – or – – external braking resistor against ZK+
	7	PE	PE	Connection for protective conductor from the mains
	8	+24 V	+24 V DC ±20%	Supply for control section, holding brake and I/O
	9	GND24 V	GND24 V DC	Reference potential for supply 0V

1) Representation of the contact strip on the motor controller CMMP-AS-...-3A-M0

[X40]1)	Pin no.	Designation	Value	Specification
	8	0 V	0 V	Reference potential for auxiliary power supply.
	7	24 V	+24 V DC	Output for auxiliary power supply (24 V DC logic supply of the motor controller brought out).
	6	C2	–	Feedback contact for the status "STO" on an external controller.
	5	C1		
	4	0V-B	0V	Reference potential for STO-B.
	3	STO-B	0 V / 24 V	Control port B for the function STO.
	2	0V-A	0 V	Reference potential for STO-A.
	1	STO-A	0V / 24V	Control port A for the function STO.

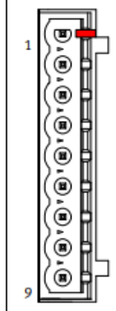
Note : Pin 5 (C1) and Pin 6 (C2) of Connector X40 are shown on the safety page.

Project status		xxx			FESTO CORPORATION		CMMP-AS-4:X9,X40,X19
00A.	12.07.2022	ca0zfa	Date	19.11.2021 CA0ZFA			
			Edit by	12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE		
			Appr.				
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU			

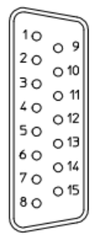
EN	&EFS		
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	33
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

[X6]1)	Pin no.	Designation	Value	Specification
	1	Br-	0 V brake	Holding brake (motor), signal level dependent on switching status, high-side/low-side switch
	2	BR+	24 V brake	
	3	PE	PE	Cable shield for the holding brake and the temperature sensor (with Festo cables: n.c.)
	4	-MTdig	GND	Motor temperature sensor, N/C contact, N/O contact, PTC, KTY ...
	5	+MTdig	+3.3 V 5 mA	
	6	PE	PE	Protective earth conductor from the motor
	7	W	Technical data ➔ Tab. A.9	Connection of the three motor phases
	8	V		
	9	U		

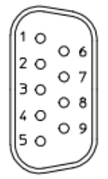
1) Representation of the plug on the device of the motor controller CMMP-AS-...-3A-M0

[X2B]	Pin no.		Designation	Value	Specification
	1		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...
		9	U_SENS+	5 V ... 12 V R_i ≈ 1 kΩ	Sensor cable for the encoder supply
	2		U_SENS-		
		10	US	5 V/12 V ±10% I_{max} = 300 mA	Operating voltage for high-resolution incremental encoder
	3		GND	0V	Reference potential for encoder supply and motor temperature sensor
		11	–		
	4		–		
		12	DATA	5 V_{SS} R_i ≈ 120 Ω	Bidirectional RS485 data cable (differential)
	5		DATA#		
		13	SCLK	5 V_{SS} R_i ≈ 120 Ω	RS485 clock output (differential)
	6		SCLK#		
		14	COS_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	COSINE tracking signal (differential) from high-resolution incremental encoder
	7		COS_Z0 1)#		
		15	SIN_Z0 1)	1 V_{SS} ±10% R_i ≈ 120 Ω	SINE tracking signal (differential) from high-resolution incremental encoder
	8		SIN_Z0 1)#		

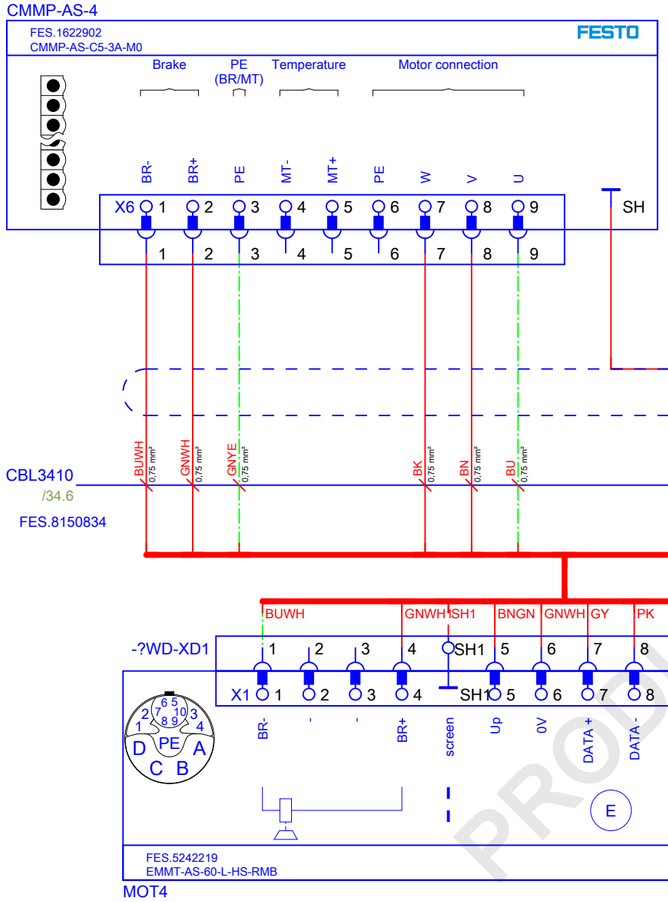
1) Heidenhain encoder: A=SIN_Z0; B=COS_Z0

Pin assignment: Incremental encoder with serial interface, e.g. EnDat – optional

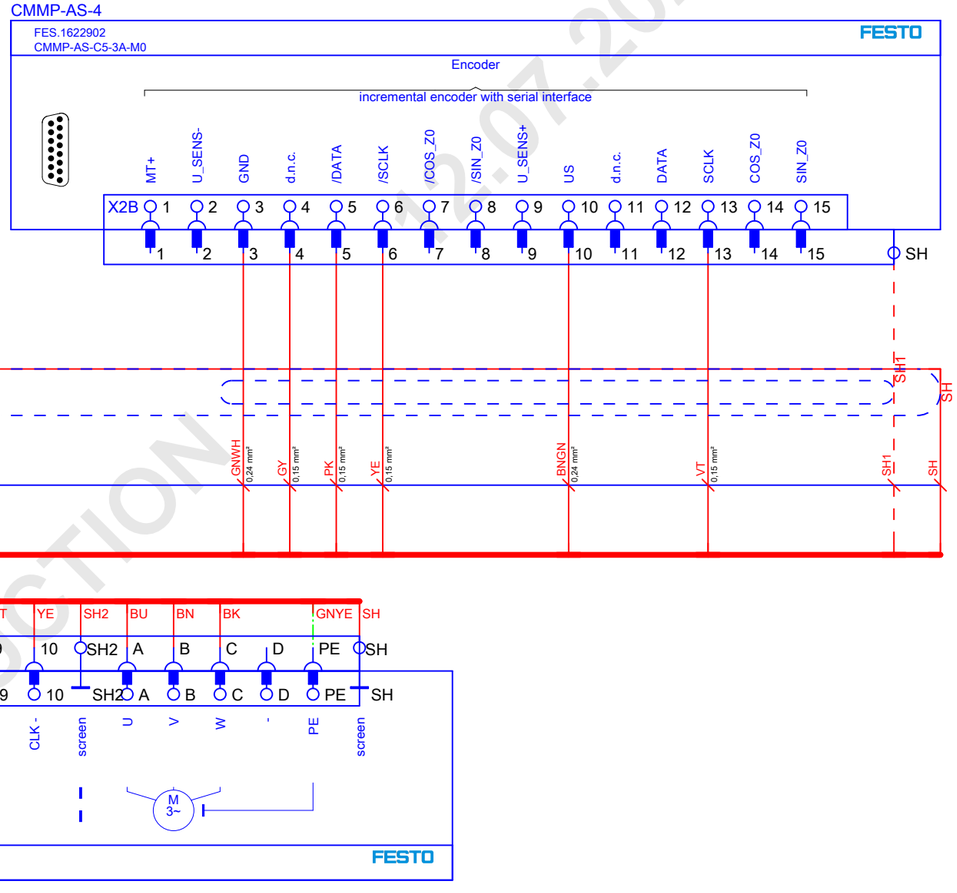
Pin assignment [X2A]

[X2A]	Pin no.		Designation	Value	Specification
	1		S2	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	SINE tracking signal, differential
		6	S4		
	2		S1	3.5 V_{eff} 5-10 kHz R_i > 5 kΩ	COSINE tracking signal, differential
		7	S3		
	3		AGND	0 V	Screening for signal pairs (inner screening)
		8	MT-	GND	Reference potential for temperature sensor
	4		R1	7 V_{eff} 5-10 kHz I_A ≤ 150 mA_{eff}	Carrier signal for resolver
		9	R2	GND	
	5		MT+	+3.3 V R_i = 2 kΩ	Temperature sensor, motor temperature, N/C contact, PTC, KTY ...

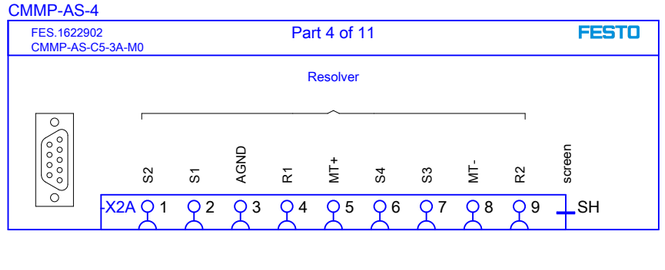
/33.0
CMMP-AS-4

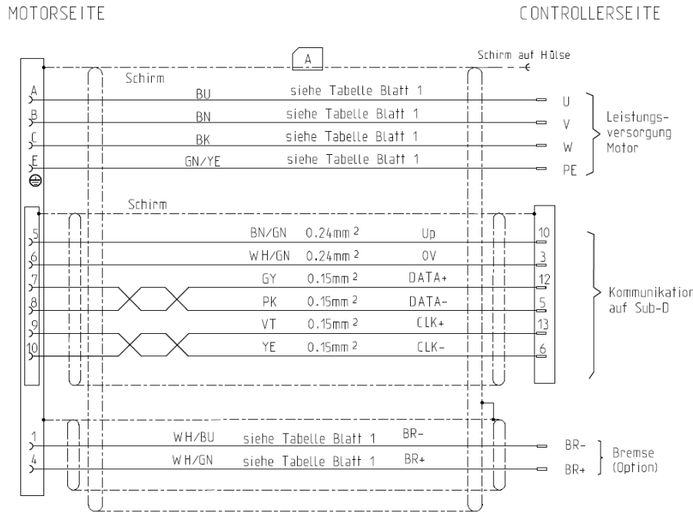


/33.0
CMMP-AS-4



/33.0
CMMP-AS-4





Servo shown in this page to show connection example only

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

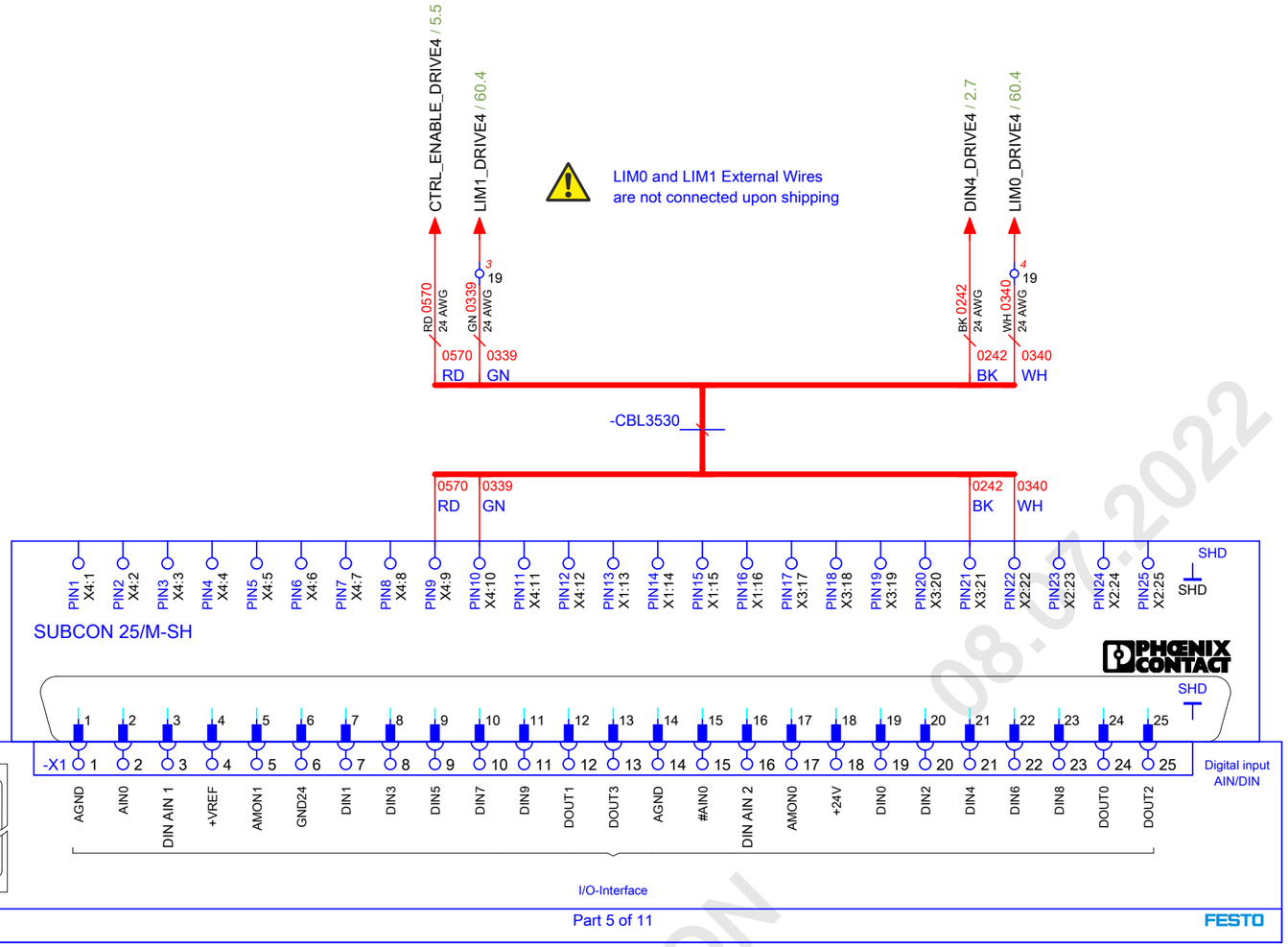
FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-4:X6,X2B,X2A

EN	&EFS
Material no.: 23455210	= A1
	+ O1
Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 34
Productionorder: 001330719396	Pg. 60

DIN A3 13.07.2022



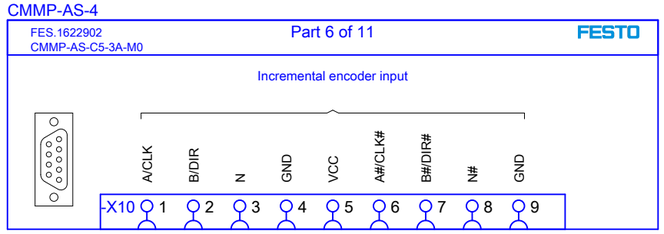
[X1]	Pin no.	Designation	Specification
	13	DOUT3	Output freely parameterisable, optionally parameterisable as DIN11
	25	DOUT2	Output freely parameterisable, optionally parameterisable as DIN10
	12	DOUT1	Output freely parameterisable
	24	DOUT0	Controller ready, output permanently assigned
	11	DIN 9	Fieldbus data profile (CiA 402, FHPP), input freely parameterisable
	23	DIN 8	Fieldbus activation communication, input freely parameterisable
	10	DIN7	Limit switch 1 (blocks n < 0), input permanently assigned
	22	DIN6	Limit switch 0 (blocks n > 0), input permanently assigned
	9	DIN5	Controller enable, input permanently assigned
	21	DIN4	End stage enable, input permanently assigned
	8	DIN 3	Fieldbus offset node number bit 3, input freely parameterisable
	20	DIN 2	Fieldbus offset node number bit 2, input freely parameterisable
	7	DIN 1	Fieldbus offset node number bit 1, input freely parameterisable
	19	DIN 0	Fieldbus offset node number bit 0, input freely parameterisable
	6	GND24	Reference potential for digital I/Os
	18	+24 V	24 V output
	5	AOUT1	Analogue output freely parameterisable
	17	AOUT0	Analogue output freely parameterisable
	4	+VREF	Reference output for setpoint potentiometer
	16	DIN13	Fieldbus transmission rate bit 1, optionally parameterisable as AIN2[1)]
	3	DIN12	Fieldbus transmission rate bit 0, optionally parameterisable as AIN1[1)]
	15	#AIN0	Setpoint input 0, differential analogue input
	2	AIN0	
	14	AGND	Reference potential for analogue signals
	1	AGND	Screening for analogue signals, AGND

1) Configuration with FCT. Observe not ➔ Abschnitt 4.3.3.

[X10]	Pin no.	Designation	Value	Specification
	1	A/CLK/CW	5 V R_i ≈ 120 Ω	Incremental encoder signal A Stepper motor signal CLK Pulses clockwise CW pos. polarity in accordance with RS422
	6	A#/CLK#/CW#	5 V R_i ≈ 120 Ω	Incremental encoder signal A Step motor signal CLK Pulses clockwise CW neg. polarity in accordance with RS422
	2	B/DIR/CCW	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW pos. polarity in accordance with RS422
	7	B#/DIR#/CCW#	5 V R_i ≈ 120 Ω	Incremental encoder signal B Step motor signal DIR Pulses counterclockwise CCW neg. polarity in accordance with RS422
	3	N	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N pos. polarity in accordance with RS422
	8	N#	5 V R_i ≈ 120 Ω	Incremental encoder zero pulse N neg. polarity in accordance with RS422
4		GND	–	Reference GND for encoder
	9	GND	–	Screening for the connecting cable
5		VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

Tab. 4.21 Pin assignment X10: Incremental encoder input

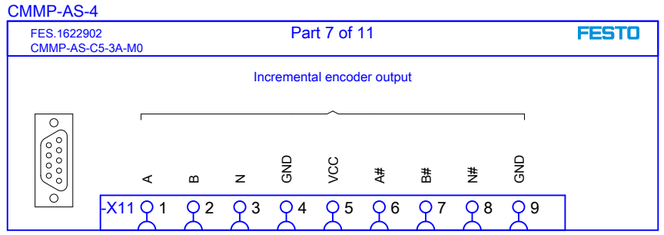
/33.0
CMMP-AS-4



[X11]	Pin no.	Designation	Value	Specification
	1	A	5 V RA ≈ 66 Ω1)	Incremental encoder signal A
	6	A#	5 V RA ≈ 66 Ω1)	Incremental encoder signal A#
	2	B	5 V RA ≈ 66 Ω1)	Incremental encoder signal B
	7	B#	5 V RA ≈ 66 Ω1)	Incremental encoder signal B#
	3	N	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N
	8	N#	5 V RA ≈ 66 Ω1)	Incremental encoder zero pulse N#
	4	GND	-	Reference GND for encoder
	9	GND	-	Screening for connecting cable
	5	VCC	+5 V ±5% 100 mA	Auxiliary supply, maximum load 100 mA, short-circuit proof!

1) The specification for RA designates the differential output resistance

/33.0
CMMP-AS-4



Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

CMMP-AS-4:X1,X10,X11

EN | &EFS

Material no.: 23455210 | = A1 | + O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE | Pg. 35

Productionorder: 001330719396 | Pg. 60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

24V_ETHERNET_SW / 2.5

0V_ETH_SW / 2.2

-TB2 1 16PE

BU 0242 18 AWG

WHBU 0220 18 AWG

ETH5000

UB1 1 | 0V 2 | PE 3 | n.c. 4

MURR ELEKTRONIK
stay connected

8 port unmanaged switch
58812

PORT 1	PORT 2	PORT 3	PORT 4	PORT 5	PORT 6	PORT 7	PORT 8
RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
X1 1-8	X2 1-8	X3 1-8	X4 1-8	X5 1-8	X6 1-8	X7 1-8	X8 1-8

CBL5010 23157800

-CBL5020 23157800

-CBL5030 23157800

-CBL5040 23157800

-CBL5050 23157800

PLC_ETH2 11.3 / CBL5010

X18 Ethernet — Mounting location 1 — FESTO

192.168.4.21 /21.0 CMMP-AS-1

192.168.4.22 /25.0 CMMP-AS-2

192.168.4.23 /29.0 CMMP-AS-3

192.168.4.24 /33.0 CMMP-AS-4

Cables will be loose upon shipping

35 55

Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	11.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

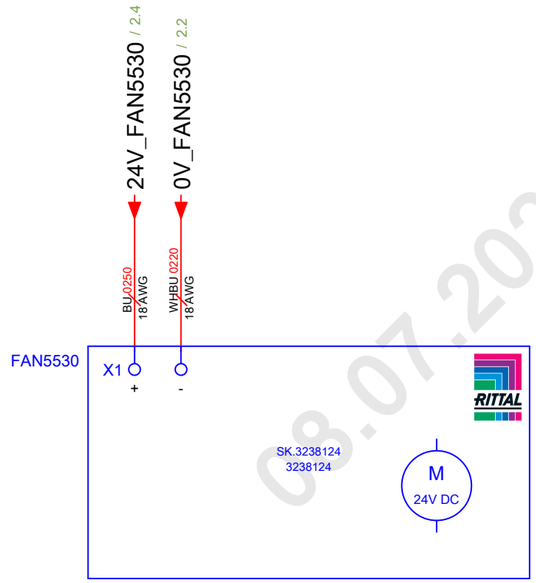
FESTO

Ethernet Switch Connection

EN		&EFS	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	50
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9



50 60

Project status		xxx			
			Date	19.11.2021	CA0ZFA
			Edit by	08.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

FAN Connection

		EN	&EFS
Material no.:	23455210	=	A1
		+	O1
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	55
Productionorder:	001330719396	Pg.	60

DIN A3 13.07.2022

Terminal diagram

Terminal strip =A1+O1-TB1

Type number	Manufacturer	Connection design / -number	14 AWG	Cable name (external)	Cable type	Target designation (external)	Connection	Connection external	Level	Terminal	Connection internal	Jumper	Connection	Target designation (internal)	Cable type	Cable name (internal)	Connection design / -number	Page / column
ZDK 2.5-2PE	WEI		YEGN			-TB2	1PE:7	2	1	1	1							&EFS/1.2
						-DS0110-L3	PE	4	2	1	3							&EFS/1.2
ZDK 2.5-2V	WEI							2	1	2	1							&EFS/1.4
		N	WH			-PSU211	N	4	2	2	3							&EFS/1.4
ZDK 2.5-2V	WEI	**N**	WH				2	2	1	3	1							&EFS/1.4
		N	WH				2	4	2	3	3							&EFS/1.4
ZDK 2.5-2V	WEI	**N**	WH				2	2	1	4	1							&EFS/1.5
		N	WH				2	4	2	4	3							&EFS/1.5

Project status		xxx		FESTO CORPORATION	
00A.	12.07.2022	ca0zfa	Date 19.11.2021 CA0ZFA		
			Edit by 12.07.2022 ca0zfa	FMCP-3P-4CMMP-CPXE	
			Appr.		
Modification	Date	Name	Standard DIRECTIVE 2014/35/EU		

FESTO

Terminal diagram

EN		&EMA
Material no.:	23455210	= A1
		+ O1
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg. 1
Productionorder:	001330719396	Pg. 5

DIN A3 13.07.2022

0	1	2	3	4	5	6	7	8	9

Terminal diagram

Terminal strip
=A1+O1-TB2

Type number	Manufacturer	Connection design / -number	14 AWG	18 AWG	22 AWG	Cable name (external)	Cable type	Target designation (external)	Connection (external)	Connection external	Level	Terminal	Connection internal	Jumper	Connection (internal)	Target designation (internal)	Cable type (internal)	Cable name (internal)	-CBL0510	22 AWG	20 AWG	18 AWG	Connection design / -number	Page / column
AMC 2.5	WEI		YEGN			-TB1			1:2	7	1	1PE												&EFS/1.2
		0220		WHBU					9	6	2	1	1		9							WHBU	0220	&EFS/2.0
										5	3	1	2		58	-SR0510					BU		0581	&EFS/5.8
										4	4	1	3		48	-SR0510					BU		0580	&EFS/5.7
AMC 2.5	WEI			GNYE					7	7	1	2PE												&EFS/21.1
										6	2	2	1		9							WHBU	0220	&EFS/2.0
										5	3	2	2		3						BU		0581	&EFS/5.8
										4	4	2	3		1						BU		0580	&EFS/5.7
AMC 2.5	WEI			GNYE					7	7	1	3PE												&EFS/25.1
										6	2	3	1		9							WHBU	0220	&EFS/2.0
										5	3	3	2											&EFS/5.8
										4	4	3	3											&EFS/5.7
AMC 2.5	WEI			GNYE					7	7	1	4PE												&EFS/29.1
										6	2	4	1		-2	-PSU211								&EFS/2.0
										5	3	4	2											&EFS/5.8
										4	4	4	3											&EFS/5.7
AMC 2.5	WEI			GNYE					7	7	1	5PE												&EFS/33.1
										6	2	5	1		2							WHBU	0220	&EFS/2.1
		0242		BU		-FU0220			OUT:3	5	3	5	2		A1	-SR0510						BU	0242	&EFS/2.5
		0552			BU	-SR0510			S12	4	4	5	3		21	-PB1	GN						0552	&EFS/5.1
AMC 2.5	WEI									7	1	6PE												
										6	2	6	1											&EFS/2.1
		0242		BU		-ETH5000			1	5	3	6	2		13	-SR0510						BU	0242	&EFS/2.5
		0562			BU	-SR0510			S22	4	4	6	3		22	-PB1	BU						0562	&EFS/5.1
AMC 2.5	WEI									7	1	7PE												
										6	2	7	1											&EFS/2.1
										5	3	7	2		61	-SR0510						BU	0242	&EFS/2.6
		0547			BU	-CMMP-AS-1-S1-CMMP-AS-1			-X40:5	4	4	7	3		X2	-SR0510				BU			0547	&EFS/5.6
AMC 2.5	WEI					-CMMP-AS-1			X9:PE	7	1	8PE												&EFS/21.2
										6	2	8	1		4							WHBU	0220	&EFS/2.1
										5	3	8	2		47	-SR0510						BU	0242	&EFS/2.6
										4	4	8	3		62	-SR0510						BU	0590	&EFS/5.9
AMC 2.5	WEI					-CMMP-AS-2			X9:PE	7	1	9PE												&EFS/25.2
										6	2	9	1											&EFS/2.1
										5	3	9	2		57	-SR0510						BU	0242	&EFS/2.6
										4	4	9	3											&EFS/5.9

1 2.1

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

Terminal diagram

		EN	&EMA
Material no.:	23455210	=	A1
		+	O1
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	2
Productionorder:	001330719396	Pg.	5

DIN A3 13.07.2022

Terminal diagram

Terminal strip
=A1+O1-TB2

Type number	Manufacturer	Connection design / -number	22 AWG	18 AWG	14 AWG	external Cable name	external Cable type	external Target designation	Connection	Connection external	Level	Terminal	Connection internal	Jumper	Connection	internal Target designation	internal Cable type	-CBL2330	-CBL0510	-CBL3130	-CBL3530	-CBL2730	18 AWG	22 AWG	Connection design / -number	Page / column
AMC 2.5	WEI							-CMMP-AS-3	X9:PE	7	1	10PE														&EFS/29.2
										6	2	10	1													&EFS/2.2
										5	3	10	2		X3:21	-CON2300		BK							**0242**	&EFS/2.6
		0550	BU			-PB2		41		4	4	10	3		S11	-SR0510								BU	**0550**	&EFS/5.1
AMC 2.5	WEI					-CMMP-AS-4		X9:PE		7	1	11PE														&EFS/33.2
		0220		WHBU		-PLC1102		XD:2		6	2	11	1		A2	-SR0510							WHBU		**0220**	&EFS/2.2
										5	3	11	2		17:4	-TB2								BK	**0242**	&EFS/2.6
						-PB2		42		4	4	11	3		41	-PB1		BK							**0551**	&EFS/5.1
		0220		WHBU		-LT1		x2		6	2	12	1		0V	-FU0220							WHBU		**0220**	&EFS/2.2
										5	3	12	2		X3:21	-CON3100			BK						**0242**	&EFS/2.6
		0560	BU			-PB2		21		4	4	12	3		S21	-SR0510								BU	**0560**	&EFS/5.1
AMC 2.5	WEI									7	1	13PE														
										6	2	13	1		X1:-	-FAN5530							WHBU		**0220**	&EFS/2.2
										5	3	13	2		X3:21	-CON3500					BK				**0242**	&EFS/2.7
						-PB2		22		4	4	13	3		42	-PB1		RD							**0561**	&EFS/5.1
AMC 2.5	WEI				GNYE	-PSU211		PE		7	1	14PE														&EFS/2.1
										6	2	14	1		2	-ETH5000							WHBU		**0220**	&EFS/2.2
										5	3	14	2													&EFS/2.7
		0541	BU			-SR0510		X1		4	4	14	3		12	-S1										&EFS/5.3
AMC 2.5	WEI			GNYE		-PSU211		-1		7	1	15PE														&EFS/2.0
										6	2	15	1		1:1	-TB3							WHBU		**0220**	&EFS/2.3
										5	3	15	2													&EFS/2.7
						-S1		11		4	4	15	3		-X40:6	-CMMP-AS-4-S1-CMMP-AS-4								BU	**0542**	&EFS/5.3
AMC 2.5	WEI					-ETH5000		3		7	1	16PE														&EFS/50.5
										6	2	16	1		X4:9	-CON2300		RD							**0570**	&EFS/5.5
										5	3	16	2		X4:10	-CON2300		GN							**333**	&EFS/23.2
										4	4	16	3		X2:22	-CON2300		WH							**0334**	&EFS/23.4
AMC 2.5	WEI									7	1	17PE														
										6	2	17	1		X4:9	-CON2700						RD			**0570**	&EFS/5.5
										5	3	17	2		X4:10	-CON2700						GN			**0335**	&EFS/27.2
		0242	BK			-TB2		11:2		4	4	17	3		X3:21	-CON2700						BK			**0242**	&EFS/27.4
AMC 2.5	WEI							PE		7	1	18PE														&EFS/2.0
										6	2	18	1		X4:9	-CON3100			RD						**0570**	&EFS/5.5
										5	3	18	2		X4:10	-CON3100			GN						**0337**	&EFS/31.2
										4	4	18	3		X2:22	-CON3100			WH						**0338**	&EFS/31.4
AMC 2.5	WEI							PE		7	1	19PE														&EFS/2.0

Project status		xxx			
00A.	12.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
			Edit by	12.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

Terminal diagram

EN &EMA

Material no.: 23455210

= A1

\+ O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 2.1

Productionorder: 001330719396 Pg. 5

DIN A3 13.07.2022

Terminal diagram

Terminal strip =A1+O1-TB2

Type number	Manufacturer	Connection design / -number	Cable name (external)	Cable type (external)	Target designation (external)	Connection (external)	Connection external	Level	Terminal	Connection internal	Jumper	Connection (internal)	Target designation (internal)	Cable type (internal)	-CBL3530	20 AWG	Connection design / -number	Page / column
							6	2	19	1		X4:9	-CON3500	RD			**0570**	&EFS/5.5
							5	3	19	2		X4:10	-CON3500	GN			**0339**	&EFS/35.2
							4	4	19	3		X2:22	-CON3500	WH			**0340**	&EFS/35.4
AMC 2.5	WEI						7	1	20PE									
							6	2	20	1								&EFS/5.6
							5	3	20	2								
							4	4		3								
AMC 2.5	WEI						7	1	21PE									
							6	2	21	1								&EFS/5.6
							5	3	21	2								
							4	4	21	3								
AMC 2.5	WEI						7	1	22PE									
							6	2	22	1		14	-SR0510			BU	**0570**	&EFS/5.6
							5	3	22	2								
							4	4	22	3								

Project status	xxx		FESTO CORPORATION		Terminal diagram
00A. 12.07.2022	ca0zfa	Date 19.11.2021 CA0ZFA			EN / &EMA
		Edit by 12.07.2022 ca0zfa			Material no.: 23455210 / = A1
		Appr.	FMCP-3P-4CMMP-CPXE		+ O1
Modification / Date / Name		Standard DIRECTIVE 2014/35/EU			Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 2.2
					Productionorder: 001330719396 Pg. 5

DIN A3 13.07.2022

Terminal diagram

Terminal strip =A1+O1-TB3

Type number	Manufacturer	Connection design / -number	22 AWG	Cable name (external)	Cable type	Target designation (external)	Connection (external)	Connection external	Level	Terminal	Connection internal	Jumper	Connection (internal)	Target designation (internal)	Cable type	Cable name (internal)	20 AWG	22 AWG	18 AWG	Connection design / -number	Page / column
AMC 2.5	WEI							7	1	1PE											
								6	2	1	1		15:1	-TB2					WHBU	**0220**	&EFS/11.1.0
								5	3	1	2		X0:0	-DO1103				BU		**1410**	&EFS/14.1.1
								4	4	1	3		X0:0	-DI1104				BU		**0590**	&EFS/12.1
AMC 2.5	WEI							7	1	2PE											
								6	2	2	1										&EFS/11.1.0
								5	3	2	2		X0:1	-DO1103				BU		**1420**	&EFS/14.1.2
								4	4	2	3		X1:0	-DI1104							&EFS/12.2
AMC 2.5	WEI							7	1	3PE											
								6	2	3	1										&EFS/11.1.1
								5	3	3	2		X1:0	-DO1103				BU		**1430**	&EFS/14.1.3
								4	4	3	3		X2	-DI1104							&EFS/12.3
AMC 2.5	WEI							7	1	4PE											
								6	2	4	1										&EFS/11.1.1
								5	3	4	2		X1:1	-DO1103				BU		**1440**	&EFS/14.1.4
		0280	BU			-FU0220	14	4	4	4	3		X3:0	-DI1104				BU		**1240**	&EFS/12.4
AMC 2.5	WEI							7	1	5PE											
								6	2	5	1										&EFS/11.1.1
								5	3	5	2		X2:0	-DO1103				BU		**1450**	&EFS/14.1.5
								4	4	5	3		X2:0	-DI1104				BU		**1250**	&EFS/12.5
AMC 2.5	WEI							7	1	6PE											
								6	2	6	1										&EFS/11.1.1
								5	3	6	2		X2:1	-DO1103				BU		**1460**	&EFS/14.1.6
								4	4	6	3		X2:0	-DI1104			BU			**1260**	&EFS/12.6
AMC 2.5	WEI							7	1	7PE											
								6	2	7	1										&EFS/11.1.2
								5	3	7	2		X3:0	-DO1103				BU		**1470**	&EFS/14.1.7
								4	4	7	3		X3:0	-DI1104			BU			**1270**	&EFS/12.8
AMC 2.5	WEI							7	1	8PE											
								6	2	8	1										&EFS/11.1.2
								5	3	8	2		X3:1	-DO1103				BU		**1480**	&EFS/14.1.8
								4	4	8	3		X3:0	-DI1104			BU			**1280**	&EFS/12.9
AMC 2.5	WEI							7	1	9PE											
								6	2	9	1										&EFS/11.1.2
								5	3	9	2		OUT:2	-FU0220					BU	**0241**	&EFS/11.1.6
								4	4	9	3		X4:1	-DI1104			BU			**1310**	&EFS/13.1

2.2 3.1

Project status		xxx			
00B.	13.07.2022	ca0zfa	Date	19.11.2021	CA0ZFA
00A.	12.07.2022	ca0zfa	Edit by	13.07.2022	ca0zfa
			Appr.		
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

Terminal diagram

EN &EMA

Material no.: 23455210

= A1

+ O1

Project no.: FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE Pg. 3

Productionorder: 001330719396 Pg. 5

DIN A3 13.07.2022

Terminal diagram

Terminal strip =A1+O1-TB3

Type number	Manufacturer	Connection design / -number	external: Cable name	external: Cable type	external: Target designation	external: Connection	Terminal: Connection external	Terminal: Level	Terminal	Terminal: Connection internal	Jumper	internal: Connection	internal: Target designation	internal: Cable type	internal: Cable name	20 AWG	18 AWG	Connection design / -number	Page / column
							6	2	9	1									&EFS/11.1.3
AMC 2.5	WEI						7	1	10PE										
							6	2	10	1									&EFS/11.1.3
							5	3	10	2		-XD:0	-DO1103				BU	**0241**	&EFS/11.1.6
							4	4	10	3		X4:1	-DI1104			BU		**1320**	&EFS/13.2
AMC 2.5	WEI						7	1	11PE										
							6	2	11	1									&EFS/11.1.3
							5	3	11	2									&EFS/11.1.6
							4	4	11	3		X5:1	-DI1104			BU		**1330**	&EFS/13.3
AMC 2.5	WEI						7	1	12PE										
							6	2	12	1									&EFS/11.1.3
							5	3	12	2									&EFS/11.1.6
							4	4	12	3		X5:1	-DI1104			BU		**1340**	&EFS/13.4
AMC 2.5	WEI						7	1	13PE										
							6	2	13	1									&EFS/11.1.4
							5	3	13	2									&EFS/11.1.7
							4	4	13	3		X6:1	-DI1104			BU		**1350**	&EFS/13.5
AMC 2.5	WEI						7	1	14PE										
							6	2	14	1									&EFS/11.1.4
							5	3	14	2									&EFS/11.1.7
							4	4	14	3		X6:1	-DI1104			BU		**1360**	&EFS/13.6
AMC 2.5	WEI						7	1	15PE										
							6	2	15	1									&EFS/11.1.4
							5	3	15	2									&EFS/11.1.7
							4	4	15	3		X7:1	-DI1104			BU		**1370**	&EFS/13.8
AMC 2.5	WEI						7	1	16PE										
							6	2	16	1									&EFS/11.1.5
							5	3	16	2									&EFS/11.1.8
							4	4	16	3		X6:1	-DI1104			BU		**1380**	&EFS/13.9

3 4

Project status	xxx				
		Date	19.11.2021	CA0ZFA	
		Edit by	12.07.2022	ca0zfa	
		Appr.			
Modification	Date	Name	Standard	DIRECTIVE 2014/35/EU	

FESTO CORPORATION

FMCP-3P-4CMMP-CPXE

FESTO

Terminal diagram

EN		&EMA	
Material no.:	23455210	= A1	
		+ O1	
Project no.:	FMCP Master Drawig : 3 Phase , 4 CMMP , CPXE	Pg.	3.1
Productionorder:	001330719396	Pg.	5

DIN A3 13.07.2022