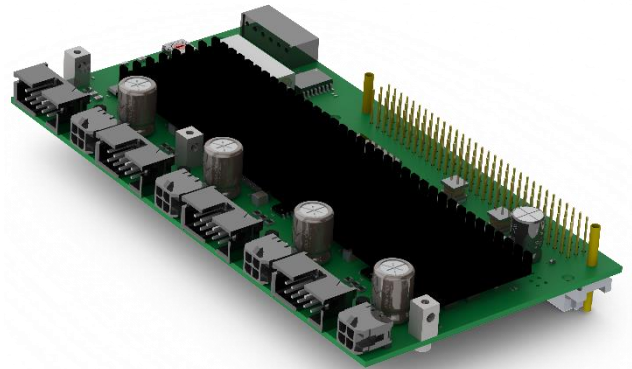


31. COPx-AX4 (Motor Output Stage for 4 Axes)

COPx-AX4 611653900

COPx is a COP card in a larger format with dimension 150 x 80mm. This module was specially developed for applications directly on a machine head periphery. Currently only permanent magnet synchronous motors (BLDC or EC) are supported. Only incremental encoders can be used as feedback system. In addition, an integrated braking resistor is available.



For the motor control, a COP-MAS or COP-MAS2 module with a free processor core is needed in the same COP case. Only a maximum of three COPx-AX4 modules can be used per COP node.



If a COP node contains COPx-AX4 modules, they must start with the rotary switch address 0. Further COPx-AX4 modules follow with increasing addressing. This means when using one module the address is set to 0. When using three modules, the addresses are set to 0, 1 and 2. All other COPx/COP module types begin at address 3 and following.



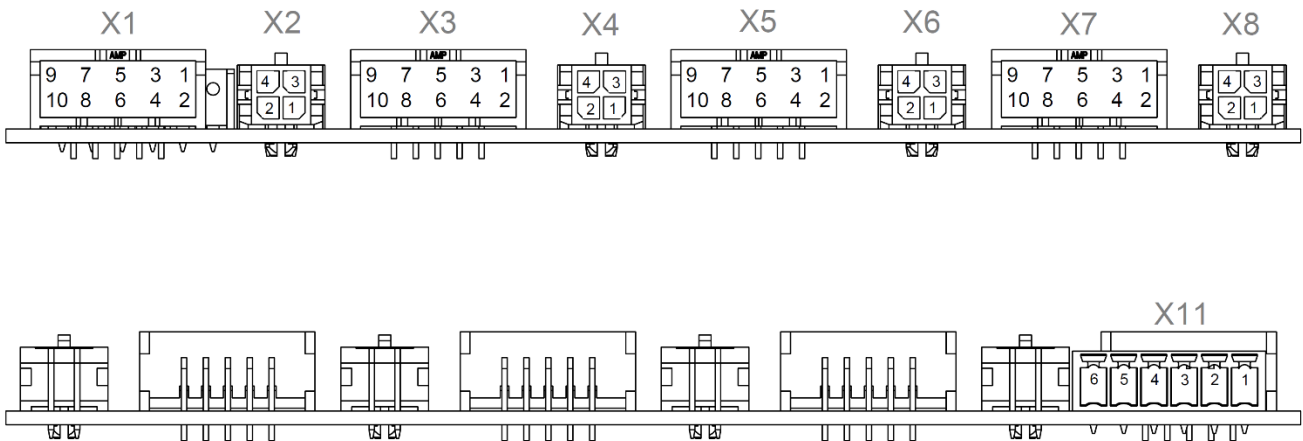
If an external motor brake is additionally connected or if the motor has Hall sensors, a COPx-ADIO or COP-IO module is required in the same COP node. Hall sensors must be connected to the ascending numbered digital inputs. For example: Hall 1 at DIN 1, Hall 2 at DIN 2 and Hall 3 at DIN 3.

31.1. Technical Specifications

Motor Output Stage		
Number of output stages	4	
Integrated braking resistor	56Ω/5W	
Rated intermediate circuit voltage	48	V _{DC}
Maximum intermediate circuit power supply	56	V _{DC}
Continuous current per final stage	2.5	A _{RMS}
Peak current (Max 5s) per final stage	5	A _{RMS}
Protection	Excessive temperature and over-current	
Connector	Molex 43045-0400	

Motor		
Minimum inductance	1	mH
Minimum resistance	0.2	Ω
Maximum cable length	20	m
Motor cable	Shielded	
Types of motor	Three-phase synchronous motors with permanent magnet DC motors	
Incremental Encoder Interface		
Level	RS422	
Input impedance	2.2	k Ω
Maximum input frequency	2.5	MHz
Maximum current load at 5V output	200	mA
Power cable	Unshielded	
Connector	TE Low Pro HDR 10P	
Module		
Maximum power consumption at 24V node power supply	100	mA

31.2. Pin Assignment



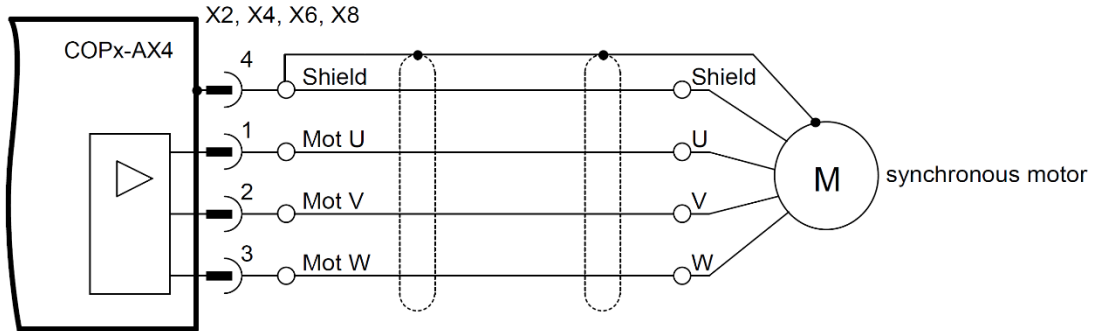
X1, X3, X5, X7					
No.	Dir	Id.	Id.	Dir	No.
2	Out	Enc_5V	NC		1
4		NC	GND		3
6	In	Inc A+	Inc A-	In	5
8	In	Inc B+	Inc B-	In	7
10	In	Ref+	Ref-	In	9

X2, X4, X6, X8					
No.	Dir	Id.	Id.	Dir	No.
2	Out	Mot V	Mot U	Out	1
4		Shield	Mot W	Out	3

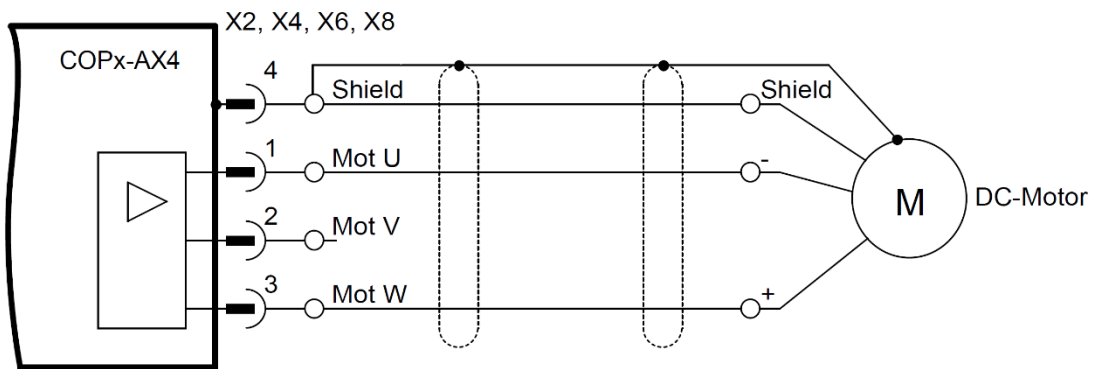
X11		
No.	Dir	Id.
1		Earth
2		Earth
3		GND
4		GND
5	In	Mot_Ucc
6	In	Mot_Ucc

31.3. Connection Examples

Synchronous motor at a final stage



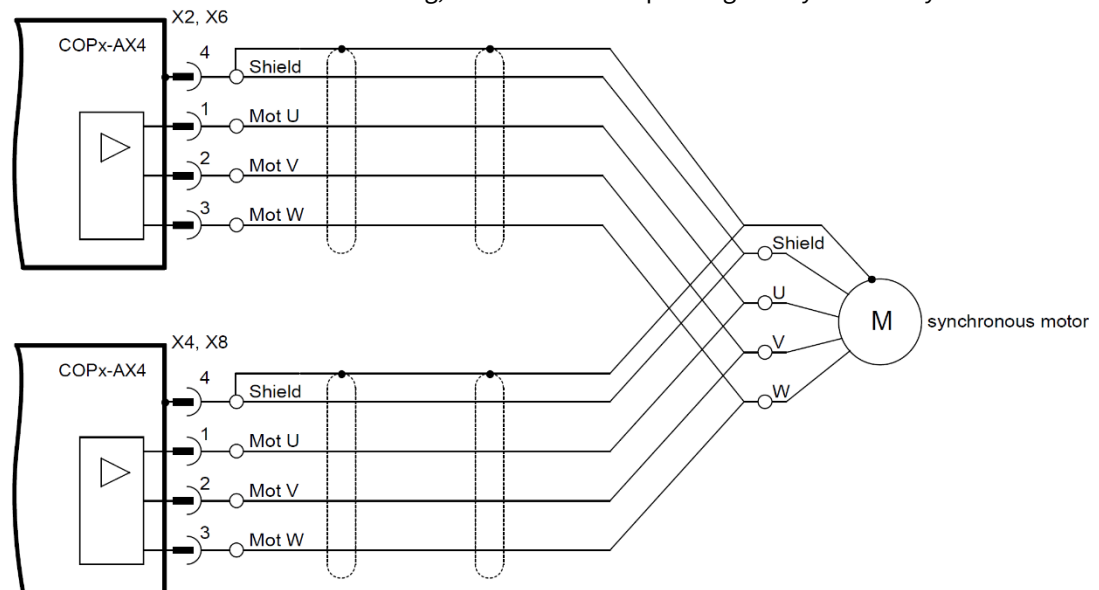
DC motor at a final stage



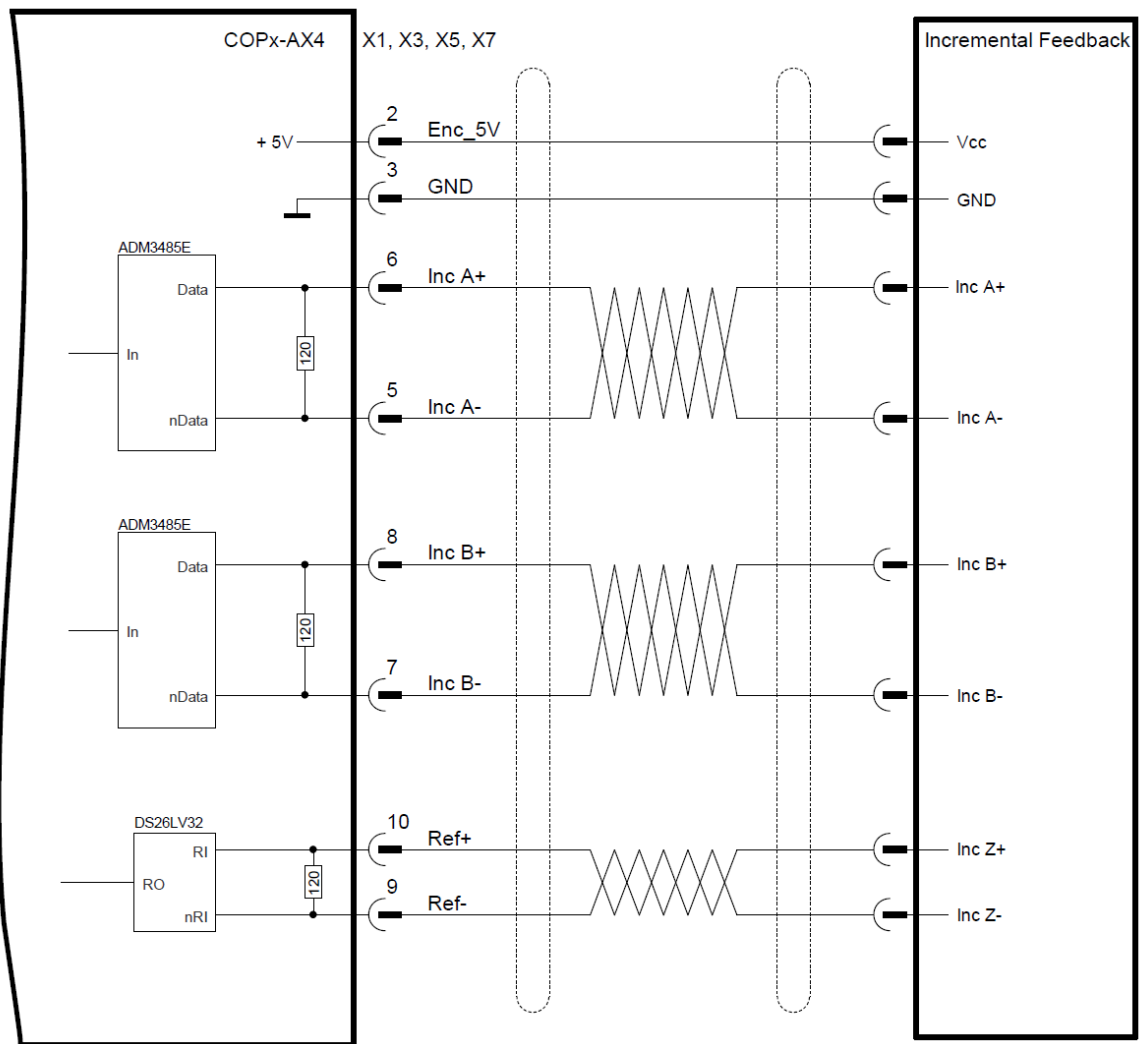
Synchronous motor at two parallel output stages



The Y cables must be at least 25cm long, otherwise the output stages may be destroyed.



Incremental Encoder Feedback



31.4. **Available Options**

Item Number	Label	Option	Description
611653900	COPx-AX4		<ul style="list-style-type: none"> • 4x Motor output stage, • PM, DC motors • Incremental Encoder Feedback