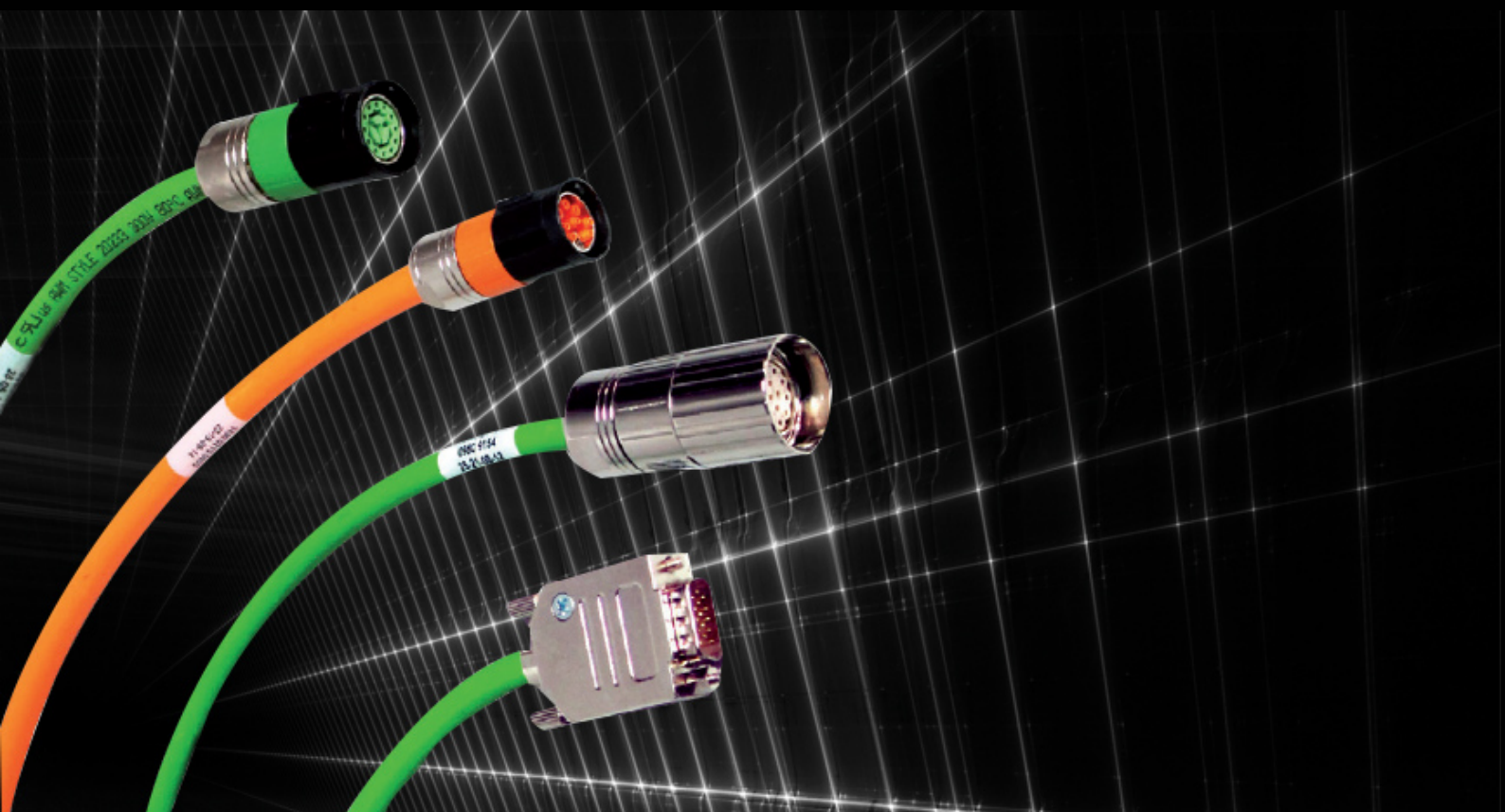


Mechatronic System Components



Harmonic
Drive AG



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Information

Connectors

- All extension cables on the actuator side are equipped with plug sockets (female).
- Unused contacts are not assembled.

Standard lengths

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

Standard cable length is 5m, 10m and 15m and sometimes 3m.

Other cable length or other connector configurations are only available on request.
Minimum quantity for SP cable length is ≥ 5 pcs each.

1. BDA

1.1 BDA Ordering Code APC (Actuator Power cable)

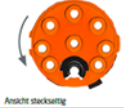
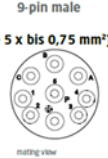

Bremse Brake		Produkt Assignment		Kabellänge Length [cm]		Regler Drive		
00= without Brake 01 = Brake		00 = BHA 01 = BDA 02 = CHA* 03 = LynxDrive		500 1000 1500		00 = open end + YukonDrive 01 = - 02 = - 03 = Bosch Rexroth		
APC	- 01	- 01	- 01	- P01	- 0500	- 00	- 01	- 00
Type Kategorie	Actuator End [side-A] Antriebsseite		Cable Structure Kabeltyp		Drive End [side-B] Reglerseite		Outer jacket Kabelmantel	
	00 = - 01 = 9pol. itec female 02 = 8pol. M23 female 03 = 6pol. M23 female 04 = - 05 = - 06 = - 07 = - 08 = 8 pol. M17 female		P00 = - P01 = (4G1,0+2x(2x0,34)C)C P02 = (4G1,5+2x(2x0,75) C)C P03 = (4G1,0+2x(2x0,75)C)C P04 = (4G0,75+2x(0,35)) P05 = 4x0,5+2x(2x0,25)) P06 = 4x0,34+2x(2x0,15) P07 = 4x2,5G+2x(2x0,15)C)C		00 = YukonDrive and flying leads 01 = Bosch Rexroth		00 = PUR	
CHA* = CanisDrive, CHA-C, Alopex, FHA								

1.2 Standard Length BDA APC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

1.3 APC - itec - Flying Leads / YukonDrive


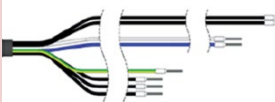


Actuator side	A-side	Signal	Colour	Controller side
9-polig Buchse 9 x Ø 1 mm [4 x bis 1,5 mm ² (3+PE) + 5 x bis 0,75 mm ²]  Ansicht steckseitig  mating view	A	Phase U	U/L1/C/L+	 flying leads / YD
	B	Phase W	W/L3/D/L-	
	C	Phase V	V/L2	
	PE	Protection line	Green-Yellow	
	1	BR+	5	
	2	BR-	6	
	3	TEMP+	7	
	4	TEMP-	8	

Ordering Code	Length	SAP Mat.-no.
APC-01-01-01-P02-0500-00-00-00	500 cm	1038620
APC-01-01-01-P02-1000-00-00-00	1000 cm	1038621
APC-01-01-01-P02-1500-00-00-00	1500 cm	1038622

1.4 APC - M23 - Flying Leads / YukonDrive



Actuator side	A-side	Signal	Colour	Controller side
8-polig P 4 x Ø 2 mm (3+PE) + 4 x Ø 1 mm 8-pin P  Ansicht steckseitig mating view	1	Phase U	U/L1/C/L+	 flying leads / YD
	2	PE	grün-gelb	
	3	Phase W	W/L3/D/L-	
	4	Phase V	V/L2	
	A	BR+	5	
	B	BR-	6	
	C	TEMP+	7	
	D	TEMP-	8	

Ordering Code	Length	SAP Mat.-no.
APC-01-02-01-P02-0500-00-00-00	500 cm	1038623
APC-01-02-01-P02-1000-00-00-00	1000 cm	1038624
APC-01-02-01-P02-1500-00-00-00	1500 cm	1038625

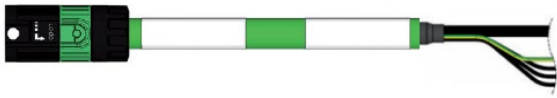
1.5 BDA Ordering Code AFC

Feedback		Produkt		Kabellänge		Regler		
Feedback		Assignment		Length [cm]		Drive		
R = R00		00 = BHA		500		00 = -		
H = Hiperface		01 = BDA		1000		01 = YukonDrive		
E = EnDat oder SSI		02 = CHA*		1500		02 = offen		
S = frei		03 = LynxDrive				03 = Bosch Rexroth		
B = BISS								
C = DriveClik								
D = Hiperface DSL								
T = TTL								
AE = Batbox MZE								
AS = Batbox MGS								
AFC	H	05	01	F02	0500	11	01	00
Type	Actuator end [side-A]	Cable structure	Drive end [side-B]	Outer jacket				
Kategorie	Antriebsseite	Kabeltyp	Reglerseite	Kabelmantel				
00 = - 01 = - 02 = - 03 = - 04 = 17 pol. M17, female 05 = 12pol., Ytec, female 06 = 12pol., M23, female 07 = 17pol., M23, female 12 = 15 pol. Sub-D, 3-reihig, UNC, gerade für MGH, female								
F00 = - F01 = - F02 = (4x(2x0,25)+2x0,5)C F03 = 4x(2x0,15)+4x0,15+2x0,5 F04 = (3x(2x0,14)+4x0,14+2x0,5)C F05 = (3x(2x0,14)+4x0,14+4x0,25+2x0,5)								
00 = - 01 = - 02 = offen 09 = 15 pol. Sub-D, male, 3-rows, 45° Side 10 = 9 pol. Sub-D, male, 2-rows, UNC, straight 11 = 15 pol. Sub-D, male, 3-rows, straight								
00 = PUR								
CHA* = CanisDrive, CHA-C, Aloplex, FHA								

1.6 Standard Length BDA AFC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

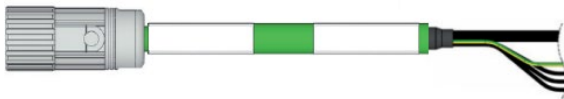
1.7 Resolver - itec - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
<p>12-polig Buchse (12 x Ø 1 mm) 12-pin female</p> <p>Ansicht steckseitig mating view</p>	1			<p>flying leads</p>
	2			
	3	Sin- (S4)	Brown	
	4	Cos- (S3)	Blue	
	5	Vss- (R2)	White	
	6			
	7	Sin+ (S2)	Green	
	8	Cos+ (S1)	Violett	
	9	Vss+ (R1)	Brown	
	1,2,6, 10-12 n.c.			

Ordering Code	Length	SAP Mat.-no.
AFC-R-05-01-F02-0500-02-02-00	500 cm	1038637
AFC-R-05-01-F02-1000-02-02-00	1000 cm	1038638
AFC-R-05-01-F02-1500-02-02-00	1500 cm	1038639

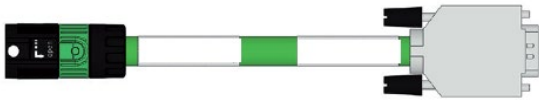
1.8 Resolver - M23 (12 pol.) - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
<p>12-polig P (12 x Ø 1 mm) 12-pin P</p> <p>0° codiert 0° coded</p> <p>Ansicht steckseitig mating view</p>	1			<p>flying leads</p>
	2			
	3	Sin- (S4)	Brown	
	4	Cos- (S3)	Blue	
	5	Vss- (R2)	White	
	6			
	7	Sin+ (S2)	Green	
	8	Cos+ (S1)	Violett	
	9	Vss+ (R1)	Brown	
	1,2,6, 10,11,12 n.c.			

Ordering Code	Length	SAP Mat.-no.
AFC-R-06-01-F02-0500-02-02-00	500 cm	1038640
AFC-R-06-01-F02-1000-02-02-00	1000 cm	1038641
AFC-R-06-01-F02-1500-02-02-00	1500 cm	1038642

1.9 Resolver - itec - Sub-D / YukonDrive



Actuator side	A-side	Signal	B-side	Controller side		
	1					
	2					
	3	Sin- (S4)	2			
	4	Cos- (S3)	8			
	5	Vss- (R2)	7			
	6					
	7	Sin+ (S2)	1			
	8	Cos+ (S1)	3			
	9	Vss+ (R1)	6			
	1,2,6, 10,11,12 n.c.					Sub-D, 15 pol. 3-rows, female, UNC, straight

Ordering Code	Length	SAP Mat.-no.
AFC-R-05-01-F02-0500-11-01-00	500 cm	1038649
AFC-R-05-01-F02-1000-11-01-00	1000 cm	1038650
AFC-R-05-01-F02-1500-11-01-00	1500 cm	1038651

1.10 Resolver - M23 (12 pol.) - Sub-D / YukonDrive



Actuator side	A-side	Signal	B-side	Controller side		
	1					
	2					
	3	Sin- (S4)	2			
	4	Cos- (S3)	8			
	5	Vss- (R2)	7			
	6					
	7	Sin+ (S2)	1			
	8	Cos+ (S1)	3			
	9	Vss+ (R1)	6			
	1,2,6, 10,11,12 n.c.					Sub-D, 15 pol. 3-rows, female, UNC, straight

Ordering Code	Length	SAP Mat.-no.
AFC-R-06-01-F02-0500-11-01-00	500 cm	1038652
AFC-R-06-01-F02-1000-11-01-00	1000 cm	1038653
AFC-R-06-01-F02-1500-11-01-00	1500 cm	1038654

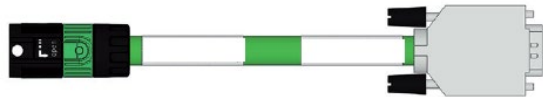
1.11 HIPERFACE - itec - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
	1	GND	Brown	 flying leads
	2			
	3	REFCOS	Brown	
	4	REFSIN	Blue	
	5			
	6			
	7	Cos+	Green	
	8	Sin+	Violet	
	9			
	10	DATA+	Grey	
	11	DATA-	Pink	
	12	Us	White	

Ordering Code	Length	SAP Mat.-no.
AFC-H-05-01-F02-0500-02-02-00	500 cm	1038643
AFC-H-05-01-F02-1000-02-02-00	1000 cm	1038644
AFC-H-05-01-F02-1500-02-02-00	1500 cm	1038645

1.12 HIPERFACE - itec - Sub-D for YukonDrive



Actuator side	A-side	Signal	B-side	Controller side
	1	GND	8	 D-Sub-Stecker D-Sub-Connector varne / front Sub-D, 15 pol. 3-rows, female, UNC, straight
	2			
	3	REFCOS	1	
	4	REFSIN	6	
	5			
	6			
	7	Cos+	2	
	8	Sin+		
	9			
	10	DATA+	4	
	11	DATA-	5	
	12	Us (7-12V)	3	
2,5,6,9 n.c.				

Ordering Code	Length	SAP Mat.-no.
AFC-H-05-01-F02-0500-11-01-00	500 cm	1038655
AFC-H-05-01-F02-1000-11-01-00	1000 cm	1038656
AFC-H-05-01-F02-1500-11-01-00	1500 cm	1038657

1.13 HIPERFACE - M23 (17 pol.) - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
<p>17-polig P (17 x Ø 1 mm) 17-plin P 0° codiert 0° coded Vorsicht stecken! handling view</p>	1	REFSIN	Brown	<p>flying leads</p>
	2	GND	Brown	
	3	REFCOS	Blue	
	4			
	5	DATA+	Grey	
	6	Us	White	
	7			
	8			
	9	Sin+	Green	
	10			
	11	Cos+	Violet	
	12			
	13	DATA-	Pink	
	4,7,8,10,12,14-17 n.c.			

Ordering Code	Length	SAP Mat.-no.
AFC-H-07-01-F02-0500-02-02-00	500 cm	1038646
AFC-H-07-01-F02-0500-02-02-00	1000 cm	1038647
AFC-H-07-01-F02-0500-02-02-00	1500 cm	1038648

1.14 HIPERFACE - M23 - Sub-D / YukonDrive



Actuator side	A-side	Signal	B-side	Controller side
<p>17-polig P (17 x Ø 1 mm) 17-plin P 0° codiert 0° coded Vorsicht stecken! handling view</p>	1	REFSIN	6	<p>D-Sub-Stecker D-Sub-Connector vorne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	GND	8	
	3	REFCOS	1	
	4			
	5	DATA+	4	
	6	Us	3	
	7			
	8			
	9	Sin+	11	
	10			
	11	Cos+	2	
	12			
	13	DATA-	5	
	4,7,8,10,12,14-17 n.c.			

Ordering Code	Length	SAP Mat.-no.
AFC-H-07-01-F02-0500-11-01-00	500 cm	1038658
AFC-H-07-01-F02-0500-11-01-00	1000 cm	1038659
AFC-H-07-01-F02-0500-11-01-00	1500 cm	1038660

2. CanisDrive

2.1 CanisDrive Ordering Code APC

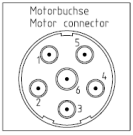

Bremse Brake		Produkt Assignment		Kabellänge Length [cm]		Regler Drive		
00= without Brake 01 = Brake		00 = BHA 01 = BDA 02 = CHA* 03 = LynxDrive		500 1000 1500		00 = open end + YukonDrive 01 = - 02 = - 03 = Bosch Rexroth		
APC	- 01	- 01	- 01	- P01	- 0500	- 00	- 01	- 00
Type Kategorie	Actuator End [side-A] Antriebsseite		Cable Structure Kabeltyp		Drive End [side-B] Reglerseite		Outer jacket Kabelmantel	
	00 = - 01 = 9pol. itec female 02 = 8pol. M23 female 03 = 6pol. M23 female 04 = - 05 = - 06 = - 07 = - 08 = 8 pol. M17 female		P00 = - P01 = (4G1,0+2x(2x0,34)C)C P02 = (4G1,5+2x(2x0,75) C)C P03 = (4G1,0+2x(2x0,75)C)C P04 = (4G0,75+2x(0,35)) P05 = 4x0,5+2x(2x0,25)) P06 = 4x0,34+2x(2x0,15) P07 = 4x2,5G+2x(2x0,15)C)C		00 = YukonDrive and flying leads 01 = Bosch Rexroth		00 = PUR	
CHA* = CanisDrive, CHA-C, Alopex, FHA								

2.2 Standard Length CanisDrive

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

2.3 APC - M23/6 pol. - Flying Leads

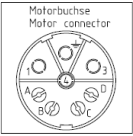
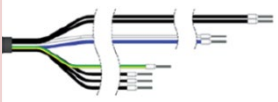


Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U/L1/C/L+	
	2	Phase V	V/L2	
	3	PE	Green-Yellow	
	4	Brake+	5	
	5	Brake-	6	
	6	Phase W	W/L3/D/L-	
				flying leads

Ordering Code	Length	SAP Mat.-no.
APC-01-03-02-P02-0300-00-00-00	300 cm	1038764
APC-01-03-02-P02-0500-00-00-00	500 cm	1038711
APC-01-03-02-P02-1000-00-00-00	1000 cm	1038749
APC-01-03-02-P02-1500-00-00-00	1500 cm	1038750

2.4 APC - M23/8 pol. - Flying Leads

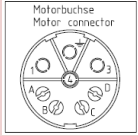



Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U1	
	2	PE	Green-Yellow	
	3	Phase W	W3	
	4	Phase V	V2	
	A	Brake+	5	
	B	Brake-	6	
	C	TEMP+	7	
	D	TEMP-	8	
				flying leads

Ordering Code	Length	SAP Mat.-no.
APC-01-02-02-P02-0300-00-00-00	300 cm	1039141
APC-01-02-02-P02-0500-00-00-00	500 cm	1039142
APC-01-02-02-P02-1000-00-00-00	1000 cm	1039143
APC-01-02-02-P02-1500-00-00-00	1500 cm	1040153

2.5 APC - M23/8 pol. - Flying Leads

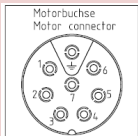



Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U1	 flying leads
	2	PE	Green-Yellow	
	3	Phase W	W3	
	4	Phase V	V2	
	A	TEMP+	5	
	B	TEMP-	6	
	C	Brake+	7	
	D	Brake-	8	

Ordering Code	Length	SAP Mat.-no.
APC-01-02-02-P02-0300-00-00-00	300 cm	1039159
APC-01-02-02-P02-0500-00-00-00	500 cm	1039160
APC-01-02-02-P02-1000-00-00-00	1000 cm	1039161

2.6 APC - M17/8 pol. - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	Red	 flying leads
	2	TEMP+	White	
	3	Brake+	White	
	4	Brake-	Black	
	5	TEMP-	Blue	
	6	Phase W	White	
	7	Phase V	Black	
	8	PE	Green-Yellow	

Ordering Code	Length	SAP Mat.-no.
APC-01-08-02-P01-0300-00-00-00	300 cm	1021095
APC-01-08-02-P01-0500-00-00-00	500 cm	1021097
APC-01-08-02-P01-1000-00-00-00	1000 cm	1021104

2.7 CanisDrive Ordering Code AFC

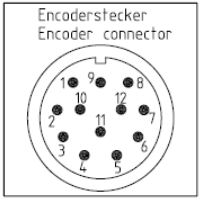

Feedback		Produkt		Kabellänge		Regler		
Feedback		Assignment		Length [cm]		Drive		
R = R00		00 = BHA		500		00 = -		
H = Hiperface		01 = BDA		1000		01 = YukonDrive		
E = EnDat oder SSI		02 = CHA*		1500		02 = offen		
S = frei		03 = LynxDrive				03 = Bosch Rexroth		
B = BISS								
C = DriveCliq								
D = Hiperface DSL								
T = TTL								
AE = Batbox MZE								
AS = Batbox MGS								
AFC	H	05	01	F02	0500	11	01	00
		00 = -		F00 = -		00 = -		00 = PUR
		01 = -		F01 = -		01 = -		
		02 = -		F02 = (4x(2x0,25)+2x0,5)C		02 = offen		
		03 = -		F03 = 4x(2x0,15)+4x0,15+2x0,5				
		04 = 17 pol. M17, female		F04 = (3x(2x0,14)+4x0,14+2x0,5)C				
		05 = 12pol., Ytec, female		F05 = (3x(2x0,14)+4x0,14+4x0,25+2x0,5				
		06 = 12pol., M23, female						
		07 = 17pol., M23, female						
		12 = 15 pol. Sub-D, 3-reihig, UNC, gerade für MGH, female				09 = 15 pol. Sub-D, male, 3-rows, 45° Side		
						10 = 9 pol. Sub-D, male, 2-rows, UNC, straight		
						11 = 15 pol. Sub-D, male, 3-rows, straight		
Type		Actuator end [side-A]		Cable structure		Drive end [side-B]		Outer jacket
Kategorie		Antriebsseite		Kabeltyp		Reglerseite		Kabelmantel
CHA* = CanisDrive, CHA-C, Alopec, FHA								

2.8 Standard Length CanisDrive AFC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

2.9 HIPERFACE SIH, MIH, SHH, MHH - M23/12 pol - Flying Leads

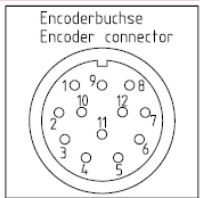
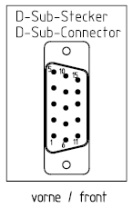


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	7- 12 V	Brown-Red	 <p>flying leads</p>
	2	GND	Brown-Blue	
	3	SIN+	Yellow	
	4	REFSIN	Green	
	5	DATA+	Red	
	6	DATA-	Orange	
	7	COS	Black	
	8	REFCOS	Brown	
	9	TEMP+	White-Yellow	
	10	TEMP-	White-Black	
	11	n.c.	Blue	
	12	n.c.	Grey	

Ordering Code	Length	SAP Mat.-no.
AFC-H-06-02-F04-0500-02-02-00	500 cm	1019785
AFC-H-06-02-F04-1000-02-02-00	1000 cm	1039257

2.10 HIPERFACE SIH, MIH, SHH, MHH - M23/12 pol. - D-SUB 15 pol.



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderbuchse Encoder connector</p> <p>shield via housing inner shield via hosing</p>	1	7- 12 V	3	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>voire / front</p> <p>shield via housing</p>
	2	GND	8	
	3	SIN+	11	
	4	REFSIN	6	
	5	DATA+	4	
	6	DATA-	5	
	7	COS	2	
	8	REFCOS	1	
	9	TEMP+	10	
	10	TEMP-	9	
	11	n.c.		
	12	n.c.		

Ordering Code	Length	SAP Mat.-no..
AFC-H-06-02-F04-0500-11-01-00	500 cm	1039259
AFC-H-06-02-F04-1000-11-01-00	1000 cm	1039260

2.11 MGSe - M23/17 pol. - Flying Leads

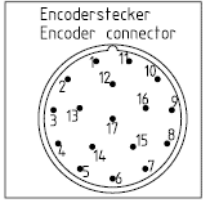
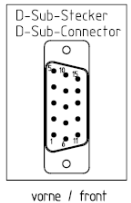


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	Red	 <p>flying leads</p>
	2	A-	White	
	3	DATA+	Green	
	4	UBAT+	White-Red	
	5	CLOCK+	Blue	
	6	UBAT-	Black	
	7	0V	Black	
	8	TEMP+	White-Brown	
	9	TEMP-	White-Blue	
	10	Up+	Red	
	11	B+	Black	
	12	B-	White	
	13	DATA-	White	
	14	CLOCK-	White	
	15	n.c.		
	16	Reset	White-Black	
	17	Inner shield		

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F03-0500-02-02-00	500 cm	1025610
AFC-E-07-02-F03-1000-02-02-00	1000 cm	1025896
AFC-E-07-02-F03-1500-02-02-00	1500 cm	1025897

2.12 MGSe - M23/17 pol. - SUB-D, 15 pol.



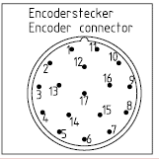
Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	2	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>varne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	A-	1	
	3	DATA+	4	
	4	UBAT+	7	
	5	CLOCK+	14	
	6	UBAT-	8	
	7	0V	8	
	8	TEMP+	10	
	9	TEMP-	9	
	10	+Up	3	
	11	B+	11	
	12	B-	6	
	13	DATA-	5	
	14	CLOCK-	15	
	15	n.c.		
	16	Reset	12	
	17	Inner shield	13	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F03-0500-11-01-00	500 cm	1039678
AFC-E-07-02-F03-1000-11-01-00	1000 cm	1039679
AFC-E-07-02-F03-1500-11-01-00	1500 cm	1025873


2.13 MGSi - M17/17 pol. - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
	1	A+ / COS+	Red	
	2	A- / COS-	White	
	3	DATA+	Green	
	4	n.c.		
	5	CLOCK+	Blue	
	6	n.c.		
	7	GND/0V	Black	
	8	TEMP+	White-Brown	
	9	TEMP-	White-Blue	
	10	+Up	Red	
	11	B+ / SIN+	Black	
	12	B- / SIN-	White	
	13	DATA-	White	
	14	CLOCK-	White	
	15	GND/Sense-	White-Black	
	16	+Up / Sense+	White-Red	
	17	n.c.		



Encoderstecker
Encoder connector



flying leads

shield via housing

Ordering Code	Length	SAP Mat.-no.
AFC-E-04-02-F03-0500-02-02-00	500 cm	1021256
AFC-E-04-02-F03-1000-02-02-00	1000 cm	1021257

2.14 MZE/SZE - M23/17 pol. - Flying Leads

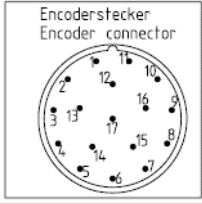
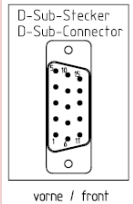


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	n.c.		 <p>flying leads</p>
	2	n.c.		
	3	DATA+	Green	
	4	UBAT+	Black	
	5	CLOCK+	Red	
	6	UBAT-	Brown	
	7	0V	Brown-Blue	
	8	TEMP+	Grey	
	9	TEMP-	Blue	
	10	+Up	Brown-Red	
	11	n.c.		
	12	n.c.		
	13	DATA-	Yellow	
	14	CLOCK-	Orange	
	15	Sense-	White-Black	
	16	Sense+	White-Yellow	
	17	Inner shield	-	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F04-0500-02-02-00	500 cm	1032999
AFC-E-07-02-F04-1000-02-02-00	1000 cm	1033000
AFC-E-07-02-F04-1500-02-02-00	1500 cm	1033001

2.15 MZE/SZE - M23/17 pol. - SUB-D, 15 pol.

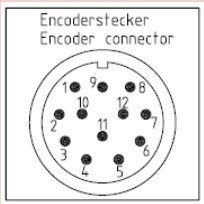



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	n.c.	2	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>voorne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	n.c.	6	
	3	DATA+	4	
	4	UBAT+	7	
	5	CLOCK+	14	
	6	UBAT-	8	
	7	0V		
	8	TEMP+	10	
	9	TEMP-	9	
	10	+Up	3	
	11	n.c.		
	12	n.c.		
	13	DATA-	5	
	14	CLOCK-	15	
	15	Sense-	13	
	16	Sense+	12	
	17	Inner shield	housing	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F04-0500-11-01-00	500 cm	1033012
AFC-E-07-02-F04-1000-11-01-00	1000 cm	1033013
AFC-E-07-02-F04-1500-11-01-00	1500 cm	1033014

2.16 Resolver - M23/12 pol. - Flying Leads



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	SIN+ (S2)	Yellow	 <p>flying leads</p>
	2	SIN- (S4)	Green	
	3	n.c.	Brown-Blue	
	4	n.c.	Brown-Red	
	5	n.c.	Blue	
	6	n.c.	Grey	
	7	Vss- (R2)	Orange	
	8	TEMP+	White-Yellow	
	9	TEMP-	White-Black	
	10	Vss+ (R1)	Red	
	11	COS+ (S1)	Black	
	12	COS- (S3)	Brown	

Ordering Code	Length	SAP Mat.-no.
AFC-R-06-02-F04-0500-02-02-00	500 cm	1024558
AFC-R-06-02-F04-1000-02-02-00	1000 cm	1024559

2.17 Resolver - M17/17 pol. - Flying Leads

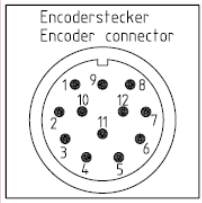
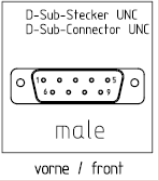


Actuator side	A-side	Signal	B-side	Drive side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	SIN+ (S2)	Yellow	 <p>flying leads</p>
	2	SIN- (S4)	Green	
	3	n.c.		
	4	n.c.		
	5	n.c.		
	6	n.c.		
	7	Vss- (R2)	Orange	
	8	TEMP+	Grey	
	9	TEMP-	White-Black	
	10	Vss+ (R1)	Red	
	11	COS+ (S1)	Black	
	12	COS- (S3)	Brown	
	13 – 17	n.c.		

Ordering Code	Length	SAP Mat.-no.
AFC-R-04-02-F04-0500-02-02-00	500 cm	1017291
AFC-R-04-02-F04-1000-02-02-00	1000 cm	1017294
AFC-R-04-02-F04-1500-02-02-00	1500 cm	fehlt

2.18 Resolver - M23/12 pol. - SUB-D, 9 pol.-YukonDrive



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield vial housing</p>	1	SIN+ (S2)	1	 <p>D-Sub-Stecker UNC D-Sub-Connector UNC</p> <p>male</p> <p>vorne / front</p> <p>Sub-D, 9 pol. 2-rows, female, UNC, straight</p>
	2	SIN- (S4)	2	
	3	n.c.	n.c.	
	4	n.c.	n.c.	
	5	n.c.	n.c.	
	6	n.c.	n.c.	
	7	Vss- (R2)	7	
	8	TEMP+	5	
	9	TEMP-	9	
	10	Vss+ (R1)	6	
	11	COS+ (S1)	3	
	12	COS- (S3)	8	

Ordering Code	Length	SAP Mat.-no.
AFC-R-06-02-F04-0500-10-01-00	500 cm	1039681
AFC-R-06-02-F04-1000-10-01-00	1000 cm	1039682

2.19 SSI - M23/17 pol. - Flying Leads

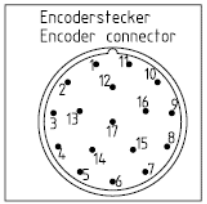


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	Yellow	 <p>flying leads</p>
	2	A-	Green	
	3	DATA+	Red	
	4	UBAT+	White-Yellow	
	5	CLOCK+	Blue	
	6	UBAT-	Grey	
	7	M-Encoder	Brown-Blue	
	8	TEMP+	Green-Black	
	9	TEMP-	Green-Red	
	10	P-Encoder	Brown-Red	
	11	B+	Black	
	12	B-	Brown	
	13	DATA-	Orange	
	14	CLOCK-	White-Black	
	15	0V sense	Brown-Yellow	
	16	5 V sense	Brown-Grey	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F05-0500-02-02-00	500 cm	1038716
AFC-E-07-02-F05-1000-02-02-00	1000 cm	1038753
AFC-E-07-02-F05-1500-02-02-00	1500 cm	1038754

2.20 SSI - M23/17 pol. - SUB-D, 15 pol.-YukonDrive

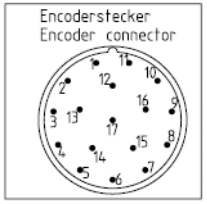


Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	1	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>varne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	A-	2	
	3	DATA+	4	
	4	n.c.	-	
	5	CLOCK+	14	
	6	n.c.	7	
	7	GND	8	
	8	TEMP+	10	
	9	TEMP-	9	
	10	5VDC	3	
	11	B+	11	
	12	B-	6	
	13	DATA-	5	
	14	CLOCK-	15	
	15	0V sense	13	
	16	5V sense	12	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F05-0500-11-01-00	500 cm	1038775
AFC-E-07-02-F05-1000-11-01-00	1000 cm	1038776
AFC-E-07-02-F05-1500-11-01-00	1500 cm	1038777

2.21 TTL - M17/17 pol. - Flying Leads

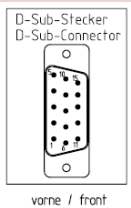


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	U+	Brown-Grey	 <p>flying leads</p>
	2	U-	Brown-Yellow	
	3	V+	Blue	
	4	V-	Grey	
	5	W+	White-Black	
	6	W-	White-Yellow	
	7	GND	Brown-Blue	
	8	+5V	Brown-Red	
	9	Z+ (Index+)	Red	
	10	Z- (Index-)	Orange	
	11	A+	Yellow	
	12	A-	Green	
	13	B+	Black	
	14	B-	Brown	
	15	TEMP+	Green-Black	
	16	TEMP-	Green-Red	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-T-04-02-F05-0500-02-02-00	500 cm	1021182
AFC-T-04-02-F05-1000-02-02-00	1000 cm	1021183

2.22 TTL - M17/17 pol. - SUB-D, 15 pol.



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	U+	4	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>vorne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	U-	5	
	3	V+	14	
	4	V-	15	
	5	W+	7	
	6	W-	12	
	7	GND	8	
	8	+5V	3	
	9	Z+ (Index+)	10	
	10	Z- (Index-)	9	
	11	A+	2	
	12	A-	1	
	13	B+	11	
	14	B-	6	
	15	n.c.	n.c.	
	16	n.c.	-	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-T-04-02-F05-0500-11-01-00	500 cm	1021147
AFC-T-04-02-F05-1000-11-01-00	1000 cm	1021149

3. LynxDrive

3.1 LynxDrive Ordering Code APC

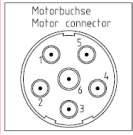

Bremse Brake		Produkt Assignment		Kabellänge Length [cm]		Regler Drive		
00 = without Brake 01 = Brake		00 = BHA 01 = BDA 02 = CHA* 03 = LynxDrive		500 1000 1500		00 = open end + YukonDrive 01 = - 02 = - 03 = Bosch Rexroth		
APC	- 01	- 01	- 01	- P01	- 0500	- 00	- 01	- 00
Type Kategorie	Actuator End [side-A] Antriebsseite		Cable Structure Kabeltyp		Drive End [side-B] Reglerseite		Outer jacket Kabelmantel	
	00 = - 01 = 9pol. itec female 02 = 8pol. M23 female 03 = 6pol. M23 female 04 = - 05 = - 06 = - 07 = - 08 = 8 pol. M17 female		P00 = - P01 = (4G1,0+2x(2x0,34)C)C P02 = (4G1,5+2x(2x0,75) C)C P03 = (4G1,0+2x(2x0,75)C)C P04 = (4G0,75+2x(0,35)) P05 = 4x0,5+2x(2x0,25)) P06 = 4x0,34+2x(2x0,15) P07 = 4x2,5G+2x(2x0,15)C)C		00 = YukonDrive and flying leads 01 = Bosch Rexroth		00 = PUR	
CHA* = CanisDrive, CHA-C, Alopex, FHA								

3.2 Standard Length LynxDrive APC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

3.3 APC - M23/6 pol. - Flying Leads

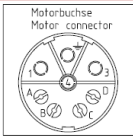



Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U/L1/C/L+	 flying leads
	2	Phase V	V/L2	
	3	PE	Green-Yellow	
	4	Brake+	5	
	5	Brake-	6	
	6	Phase W	W/L3/D/L-	

Ordering Code	Length	SAP Mat.-no.
APC-01-03-02-P02-0300-00-00-00	300 cm	1038764
APC-01-03-02-P02-0500-00-00-00	500 cm	1038711
APC-01-03-02-P02-1000-00-00-00	1000 cm	1038749
APC-01-03-02-P02-1500-00-00-00	1500 cm	1038750

3.4 APC - M23/8 pol. - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U1	 flying leads
	2	PE	Green-Yellow	
	3	Phase W	W3	
	4	Phase V	V2	
	A	TEMP+	5	
	B	TEMP-	6	
	C	Brake+	7	
	D	Brake-	8	

Ordering Code	Length	SAP Mat.-no.
APC-01-02-02-P02-0300-00-00-00	300 cm	1039159
APC-01-02-02-P02-0500-00-00-00	500 cm	1039160
APC-01-02-02-P02-1000-00-00-00	1000 cm	1039161

3.5 LynxDrive Ordering Code AFC

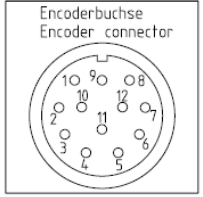
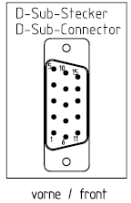
Feedback		Produkt		Kabellänge		Regler		
Feedback		Assignment		Length [cm]		Drive		
R = R00		00 = BHA		500		00 = -		
H = Hiperface		01 = BDA		1000		01 = YukonDrive		
E = EnDat oder SSI		02 = CHA*		1500		02 = offen		
S = frei		03 = LynxDrive				03 = Bosch Rexroth		
B = BISS								
C = DriveClik								
D = Hiperface DSL								
T = TTL								
AE = Batbox MZE								
AS = Batbox MGS								
AFC	H	05	01	F02	0500	11	01	00
Type	Actuator end [side-A]	Cable structure	Drive end [side-B]	Outer jacket				
Kategorie	Antriebsseite	Kabeltyp	Reglerseite	Kabelmantel				
00 = - 01 = - 02 = - 03 = - 04 = 17 pol. M17, female 05 = 12pol., Ytec, female 06 = 12pol., M23, female 07 = 17pol., M23, female 12 = 15 pol. Sub-D, 3-reihig, UNC, gerade für MGH, female								
F00 = - F01 = - F02 = (4x(2x0,25)+2x0,5)C F03 = 4x(2x0,15)+4x0,15+2x0,5 F04 = (3x(2x0,14)+4x0,14+2x0,5)C F05 = (3x(2x0,14)+4x0,14+4x0,25+2x0,5)								
00 = - 01 = - 02 = offen 09 = 15 pol. Sub-D, male, 3-rows, 45° Side 10 = 9 pol. Sub-D, male, 2-rows, UNC, straight 11 = 15 pol. Sub-D, male, 3-rows, straight								
00 = PUR								
CHA* = CanisDrive, CHA-C, Aloplex, FHA								

3.6 Standard Length LynxDrive AFC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

3.7 HIPERFACE SIH, MIH, SHH, MHH - M23/12 pol. - D-SUB 15 pol.

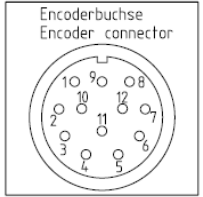
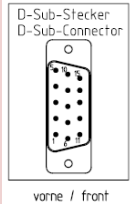


Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderbuchse Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	7- 12 V	3	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>vorne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	GND	8	
	3	SIN+	11	
	4	REFSIN	6	
	5	DATA+	4	
	6	DATA-	5	
	7	COS	2	
	8	REFCOS	1	
	9	TEMP+	10	
	10	TEMP-	9	
	11	n.c.		
	12	n.c.		

Ordering Code	Length	SAP Mat.-no.
AFC-H-06-02-F04-0500-11-01-00	500 cm	1039259
AFC-H-06-02-F04-1000-11-01-00	1000 cm	1039260

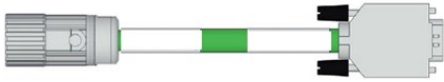
3.8 HIPERFACE SIH, MIH, SHH, MHH - M23/12 pol. - D-SUB 15 pol. 45°C-Yukon

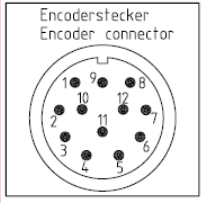
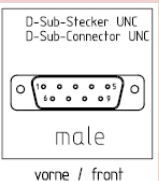


Actuator side	A-side	Signal	B- side	Controller side
 <p>Encoderbuchse Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	7- 12 V	3	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>vorne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, 45°</p>
	2	GND	8	
	3	SIN+	11	
	4	REFSIN	6	
	5	DATA+	4	
	6	DATA-	5	
	7	COS	2	
	8	REFCOS	1	
	9	TEMP+	10	
	10	TEMP-	9	
	11	n.c.		
	12	n.c.		

Ordering Code	Length	SAP Mat.-no.
AFC-H-06-02-F04-0500-09-01-00	500 cm	1039115
AFC-H-06-02-F04-1000-09-01-00	1000 cm	314278
AFC-H-06-02-F04-1500-09-01-00	1500 cm	1034975

3.9 Resolver - M23/12 pol. - SUB-D, 9 pol.-Yukon



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing inner shield via housing</p>	1	SIN+ (S2)	1	 <p>D-Sub-Stecker UNC D-Sub-Connector UNC</p> <p>male</p> <p>vorne / front</p> <p>Sub-D, 9 pol. 2-rows, female, UNC, straight</p>
	2	SIN- (S4)	2	
	3	n.c.	n.c.	
	4	n.c.	n.c.	
	5	n.c.	n.c.	
	6	n.c.	n.c.	
	7	Vss- (R2)	7	
	8	TEMP+	5	
	9	TEMP-	9	
	10	Vss+ (R1)	6	
	11	COS+ (S1)	3	
	12	COS- (S3)	8	

Ordering Code	Length	SAP Mat.-no.
AFC-R-06-02-F04-0500-10-01-00	500 cm	1039681
AFC-R-06-02-F04-1000-10-01-00	1000 cm	1039682

3.10 SSI - M23/17 pol. - Flying Leads

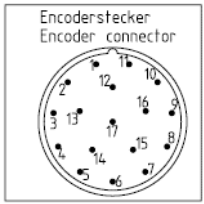
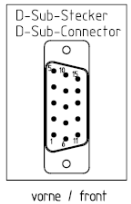


Actuator side	A-side	Signal	Colour	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	Yellow	 <p>flying leads</p>
	2	A-	Green	
	3	DATA+	Red	
	4	UBAT+	White-Yellow	
	5	CLOCK+	Blue	
	6	UBAT-	Grey	
	7	M-Encoder	Brown-Blue	
	8	TEMP+	Green-Black	
	9	TEMP-	Green-Red	
	10	P-Encoder	Brown-Red	
	11	B+	Black	
	12	B-	Brown	
	13	DATA-	Orange	
	14	CLOCK-	White-Black	
	15	0V sense	Brown-Yellow	
	16	5 V sense	Brown-Grey	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F05-0500-02-02-00	500 cm	1038716
AFC-E-07-02-F05-1000-02-02-00	1000 cm	1038753
AFC-E-07-02-F05-1500-02-02-00	1500 cm	1038754

3.11 SSI - M23/17 pol. - SUB-D, 15 pol.



Actuator side	A-side	Signal	B-side	Controller side
 <p>Encoderstecker Encoder connector</p> <p>shield via housing</p>	1	A+	1	 <p>D-Sub-Stecker D-Sub-Connector</p> <p>varne / front</p> <p>Sub-D, 15 pol. 3-rows, female, UNC, straight</p>
	2	A-	2	
	3	DATA+	4	
	4	n.c.	-	
	5	CLOCK+	14	
	6	n.c.	7	
	7	GND	8	
	8	TEMP+	10	
	9	TEMP-	9	
	10	5VDC	3	
	11	B+	11	
	12	B-	6	
	13	DATA-	5	
	14	CLOCK-	15	
	15	0V sense	13	
	16	5V sense	12	
	17	n.c.	-	

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F05-0500-11-01-00	500 cm	1038775
AFC-E-07-02-F05-1000-11-01-00	1000 cm	1038776
AFC-E-07-02-F05-1500-11-10-00	1500 cm	1038777

4. CHA-L/FHA

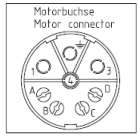

4.1 CHA-L / FHA Ordering Code APC

Bremse Brake		Produkt Assignment		Kabellänge Length [cm]		Regler Drive		
00 = without Brake 01 = Brake		00 = BHA 01 = BDA 02 = CHA* 03 = LynxDrive		500 1000 1500		00 = open end + YukonDrive 01 = - 02 = - 03 = Bosch Rexroth		
APC	- 01	- 01	- 01	- P01	- 0500	- 00	- 01	- 00
		00 = - 01 = 9pol. itec female 02 = 8pol. M23 female 03 = 6pol. M23 female 04 = - 05 = - 06 = - 07 = - 08 = 8 pol. M17 female		P00 = - P01 = (4G1,0+2x(2x0,34)C)C P02 = (4G1,5+2x(2x0,75)C)C P03 = (4G1,0+2x(2x0,75)C)C P04 = (4G0,75+2x(0,35)) P05 = 4x0,5+2x(2x0,25)) P06 = 4x0,34+2x(2x0,15) P07 = 4x2,5G+2x(2x0,15)C)C		00 = YukonDrive and flying leads 01 = Bosch Rexroth		00 = PUR
Type Kategorie	Actuator End [side-A] Antriebsseite		Cable Structure Kabeltyp		Drive End [side-B] Reglerseite		Outer jacket Kabelmantel	
CHA* = CanisDrive, CHA-C, Alopex, FHA								

4.2 Standard Length CHA-L / FHA APC

- 300 cm
- 500 cm
- 1000 cm
- 1500 cm

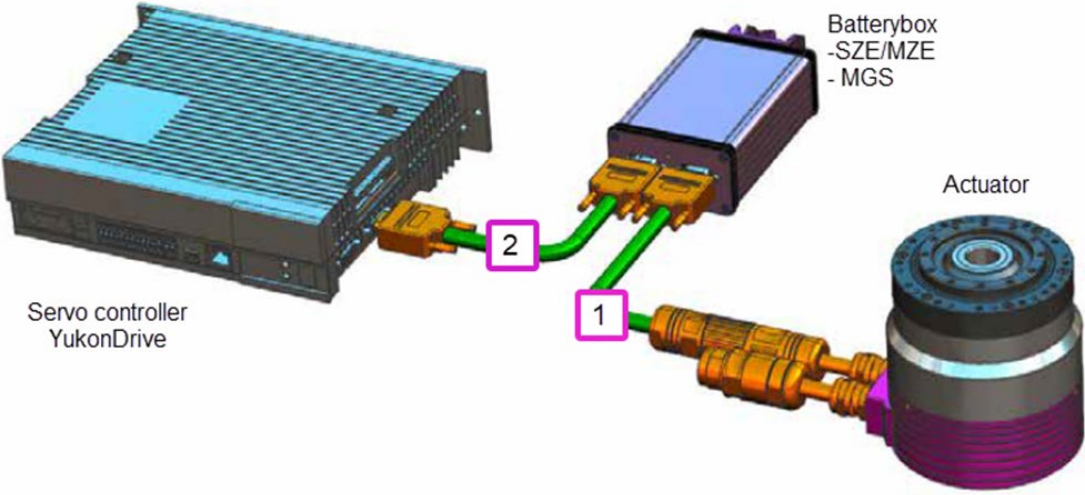
4.3 CHA-L/FHA - M23/8 pol. - Flying Leads

Actuator side	A-side	Signal	Colour	Controller side
	1	Phase U	U/L1/C/L+	 flying leads
	2/PE	Phase V	V/L2	
	A	PE	Green-Yellow	
	B	Brake+	5	
	C	Brake-	6	
	D	Phase W	W/L3/D/L-	

Ordering Code	Length	SAP Mat.-no.
APC-01-02-02-P02-0300-00-00-00	300 cm	1039141
APC-01-02-02-P02-0500-00-00-00	500 cm	1039142
APC-01-02-02-P02-1000-00-00-00	1000 cm	1019143

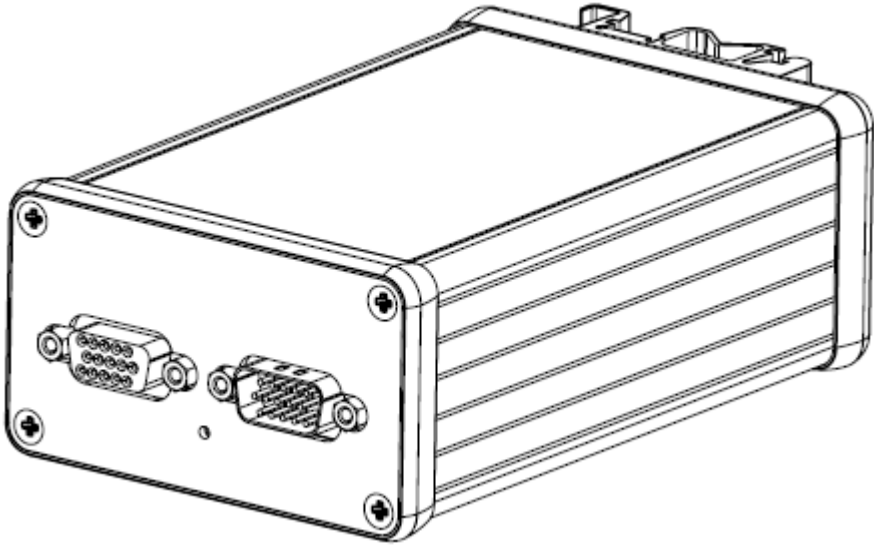
5. Battery Box Cables

5.1 Battery Box Cables MZE and MGS



5.2 Legend

- 1 Actuator – Battery box cable
- 2 Battery box – Servo controller cable

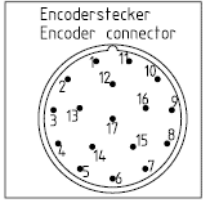


5.3 Encoder Cable Battery Box MZE/SZE

5.3.1 MZE / SZE - M23 / 17 pol. – SUB-D, 15 pol.

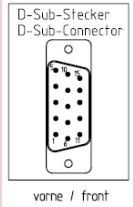


Actuator side	A-side	Signal	B-side	Controller side
	1	n.c.	2	
	2	n.c.	6	
	3	DATA+	4	
	4	UBAT+	7	
	5	CLOCK+	14	
	6	UBAT-	8	
	7	0V		
	8	TEMP+	10	
	9	TEMP-	9	
	10	+Up	3	
	11	n.c.		
	12	n.c.		
	13	DATA-	5	
	14	CLOCK-	15	
	15	Sense-	13	
	16	Sense+	12	
	17	Inner shield	housing	



Encoderstecker
Encoder connector

shield via housing



D-Sub-Stecker
D-Sub-Connector

voire / front

Sub-D, 15 pol. 3-rows,
female, UNC, straight

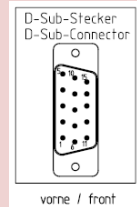
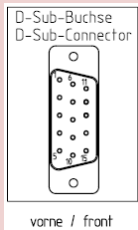
Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F04-0500-11-01-00	500 cm	1033012
AFC-E-07-02-F04-1000-11-01-00	1000 cm	1033013
AFC-E-07-02-F04-1500-11-01-00	1500 cm	1033014

5.4 MZE - SUB-D 15 pol. – SUB-D, 15 pol.



Actuator side	A-side	Signal	B-side	Controller side
	1	Inner shield	housing	
	2	n.c.	n.c.	
Socket	3	+Up	3	
	4	DATA+	4	
	5	DATA-	5	
	6	n.c.	n.c.	
	7	n.c.	n.c.	
	8	0V	8	
	9	TEMP-	9	
	10	TEMP+	10	
	11	n.c	n.c.	
	12	Sense+	12	
	13	Sense-	13	
	14	CLOCK+	14	
	15	CLOCK-	15	

Ordering Code	Length	SAP Mat.-no.
AFC-AE-12-02-F04-0050-11-01-00	50 cm	1038614
AFC-AE-12-02-F04-0100-11-01-00	100 cm	1038615
AFC-AE-12-02-F04-0200-11-01-00	200 cm	1038616



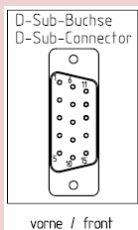
Sub-D, 15 pol. 3-rows, female, UNC, straight

5.4.1 MZE - SUB-D 15 pol. – Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
	1	Inner shield		
	2	n.c.		
Socket	3	+Up	Brown-Red	
	4	DATA+	Green	
	5	DATA-	Yellow	
	6	n.c.		
	7	n.c.		
	8	0V	Brown-Blue	
	9	TEMP-	Blue	
	10	TEMP+	Grey	
	11	n.c		
	12	Sense+	White-Yellow	
	13	Sense-	White-Black	
	14	CLOCK+	Red	
	15	CLOCK-	Orange	

Ordering Code	Length	SAP Mat.-no.
AFC-AE-12-02-F04-0050-02-02-00	50 cm	1041403
AFC-AE-12-02-F04-0100-02-02-00	100 cm	1041404
AFC-AE-12-02-F04-0200-02-02-00	200 cm	1041405



flying leads

5.5 Encoder Cable Battery Box MGS

5.5.1 MGS - M23/17 pol. – SUB-D, 15 pol.



Actuator side	A-side	Signal	Colour	Controller side
	1	A+	2	
	2	A-	1	
	3	DATA+	4	
	4	UBAT+	7	
	5	CLOCK+	14	
	6	UBAT-	8	
	7	0V	8	
	8	TEMP+	10	
	9	TEMP-	9	
	10	Up+	3	
	11	B+	11	
	12	B-	6	
	13	DATA-	5	
	14	CLOCK-	15	
	15	n.c.	-	
	16	Reset	12	
	17	Inner shield	Inner shield	
			via housing	



Encoderstecker
Encoder connector

shield via housing



D-Sub-Stecker
D-Sub-Connector

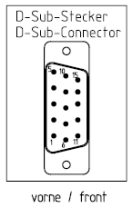
voire / front

Sub-D, 15 pol. 3-rows,
female, UNC, straight

Ordering Code	Length	SAP Mat.-no.
AFC-E-07-02-F03-0500-11-01-00	500 cm	1039678
AFC-E-07-02-F03-1000-11-01-00	1000 cm	1039679
AFC-E-07-02-F03-1500-11-01-00	1500 cm	1025873

5.5.2 MGS - SUB-D 15 pol. - SUB-D 15 pol.



Actuator side	A-side	Signal	Colour	Controller side
Socket  shield via housing	1	A- (COS-)	1	 Sub-D, 15 pol. 3-rows, female, UNC, straight
	2	A+ (COS+)	2	
	3	+Up	3	
	4	DATA+	4	
	5	DATA-	5	
	6	B- (SIN-)	6	
	7	n.c.		
	8	0V / UBAT-	8	
	9	TEMP-	9	
	10	TEMP+	10	
	11	B+ (SIN+)	11	
	12	n.c.	n.c.	
	13	Inner shield	n.c.	
	14	CLOCK+	14	
	15	CLOCK-	15	

Ordering Code	Length	SAP Mat.-no.
AFC-AS-12-02-F04-0050-11-01-00	50 cm	1041417
AFC-AS-12-02-F04-0100-11-01-00	100 cm	1041418
AFC-AS-12-02-F04-0200-11-01-00	200 cm	1041419

5.5.3 MGS - SUB-D 15 pol. - Flying Leads



Actuator side	A-side	Signal	Colour	Controller side
Socket  shield via housing	1	A- (COS-)	White	 flying leads
	2	A+ (COS+)	Red	
	3	+Up	Red	
	4	DATA+	Green	
	5	DATA-	White	
	6	B- (SIN-)	White	
	7	n.c.		
	8	0V / UBAT-	Black	
	9	TEMP-	White-Brown	
	10	TEMP+	White-Blue	
	11	B+ (SIN+)	Black	
	12	n.c.		
	13	Inner shield		
	14	CLOCK+	Blue	
	15	CLOCK-	White	

Ordering Code	Length	SAP Mat.-no.
AFC-AS-12-02-F04-0050-02-02-00	50 cm	1041420
AFC-AS-12-02-F04-0100-02-02-00	100 cm	1041421
AFC-AS-12-02-F04-0200-02-02-00	200 cm	1041422

6. Appendix

6.1 Actuator Power Cable Types

Code	Type	Manufacturer
P01	(4G1,0+2x(2x0,34)C)C	LEONI
P02	(4G1,5+2x(2x0,75) C)C	IGUS
P03	(4G1,0+2x(2x0,75)C)C	IGUS
P04	(4G0,75+2x(2x0,35))	HELU Topserv 121
P05	(4x0,5+2x(2x0,25)C)	LEONI
P06	(4x0,34+2x(2x0,15)C)	LEONI
P07	(4G2,5+2x(2x1,5)C)C	IGUS

6.1.1 Power Cable APC P01

Technical data	P01
Cable structure	(4x1,0+2x(2x0,34))
Number of cores	8
Colour code	rd, bk, wt, gn-ye, wt/bl, wt/bk
Temperature, flexible	-50°C to +90°C
Temperature, fixed	-40°C to +90°C
Rated voltage, signal	-
Rated voltage, power	600V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	-
Silicone free	-
CFC free	-
Capable for energy chains	yes
v max, traversing speed	
a max, acceleration	
Min. bending factor	5 million
Bending radius, flexible	10 x d optimal
Bending radius, fixed	5 x d
Outer diameter Ø	Ø 9,8 ± 0,2 mm
Weight	163 kg/km
Outer jacket	PUR
Approvals	CE / ROHS / UL Style 20689 90°C 150 V

6.1.2 Power Cable APC P02, P03

Technical data	P02, P03
Cable structure	(4x1,5+2x(2x0,75)C)C
Number of cores	8
Colour code	U, V, W / 5, 6, 7, 8
Temperature, flexible	-25°C to +80°C
Temperature, fixed	
Rated voltage, signal	-
Rated voltage, power	600V/1000V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	10 m/s
a max, acceleration	50 m/s ²
Min. bending factor	-25°C - +80°C 5 million
Bending radius, flexible	8 x d optimal
Bending radius, fixed	-
Outer diameter Ø	Ø 13,5 mm
Weight	298 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL- Style 10989 und 2570, 1.000 V, 80 °C

6.1.3 Power Cable APC P04

Technical data	P04
Cable structure	(4x0,5+2x(2x0,25))
Number of cores	8
Colour code	U, V, W gn/ye, 5,6,7,8
Temperature, flexible	-30°C to +80°C
Temperature, fixed	-40°C to +80°C
Rated voltage, signal	U ₀ /U 300/500V
Rated voltage, power	600V/1000V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	
a max, acceleration	
Min. bending factor	min 5 million
Bending radius, flexible	7,5 x d
Bending radius, fixed	4 x d
Outer diameter Ø	Ø 9,4 ± 0,3 mm
Weight	153 kg/km
Outer jacket	PUR
Approvals	CE / ROHS / UL AWM Style 21223 CSA AWM

6.1.4 Power Cable APC P05

Technical data	P05
Cable structure	(4x0,5+2x(2x0,25))
Number of cores	8
Colour code	U, V, W gn/ye, 5,6,7,8
Temperature, flexible	-40°C to +80°C
Temperature, fixed	-50°C to +80°C
Rated voltage, signal	U ₀ /U 300/300V
Rated voltage, power	600V/1000V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes (UL Subject 758. Style 20235 80°C)
v max, traversing speed	180 m/min
a max, acceleration	7,0 m/s ²
Min. bending factor	min 2 million
Bending radius, flexible	7,5 x d
Bending radius, fixed	5 x d
Outer diameter Ø	Ø 9,4 ± 0,3 mm
Weight	140 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL Style 20235 I/II A/B 80°C

6.1.5 Power Cable APC P06

Technical data	P06
Cable structure	(4x0,34+2x(2x0,15))
Number of cores	8
Colour code	rd, bk, wt, gr/ye, wt, bl, wt, bk
Temperature, flexible	-50°C to +90°C
Temperature, fixed	-40°C to +80°C
Rated voltage, signal	
Rated voltage, power	450V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	300 m/min
a max, acceleration	20 m/s ²
Min. bending factor	min 2 million
Bending radius, flexible	10 x d
Bending radius, fixed	2 x d
Outer diameter Ø	Ø 7,4 - 0,3 mm
Weight	87 g/m
Outer jacket	PUR
Approvals	CE, RoHS, UL-Style 20668 90°C 300 V

6.1.6 Power Cable APC P07

Technical data	P07
Cable structure	4x2,5+2x(2x1,5)C)C
Number of cores	6
Colour code	U, V, W gn/ye, 5,6,7,8
Temperature, flexible	-40°C to +80°C
Temperature, fixed	-50°C to +80°C
Rated voltage, signal	
Rated voltage, power	600/1000V
Oil resistance (DIN EN 50363-4-1)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	10 m/s
a max, acceleration	50 m/s ²
Min. bending factor	min 5 million
Bending radius, flexible	8 x d
Bending radius, fixed	5 x d
Outer diameter Ø	Ø 16 mm
Weight	421 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL-Style 10989 und 21223, 1.000 V, 80 °C

6.2 Actuator Feedback Cable Types

Code	Type	Manufacturer
F01	-	
F02	(4x(2x0,25)+2x0,5)C	IGUS
F03	4x(2x0,15)+4x0,15+2x0,5	LEONI / IGUS
F04	(3x(2x0,14)+4x0,14+2x0,5)C	HELU Topeber 512
F05	(3x(2x0,14)+4x0,14+4x0,25+2x0,5)	HELU

6.2.1 Feedback Cable AFC F01

tbd.

6.2.2 Feedback Cable AFC F02

Technical data	F02
Cable structure	(4x(2x0,25)+2x0,5)C
Number of cores	10
Colour code	br/gn, bl/vi, gr/pk, rt/bk, wt, br
Temperature, flexible	-40°C to +80°C
Temperature, fixed	-50°C to +80°C
Rated voltage, signal	
Rated voltage, power	
Oil resistance (DIN EN 50363-10-2)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	10 m/s
a max, acceleration	50 m/s ²
Min. bending factor	min 5 million
Bending radius, flexible	6 x d
Bending radius, fixed	57 mm
Outer diameter Ø	Ø 8,0 mm
Weight	85 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL Style 1589 und 2560, 30 V, 60 °C

6.2.3 Feedback Cable AFC F03

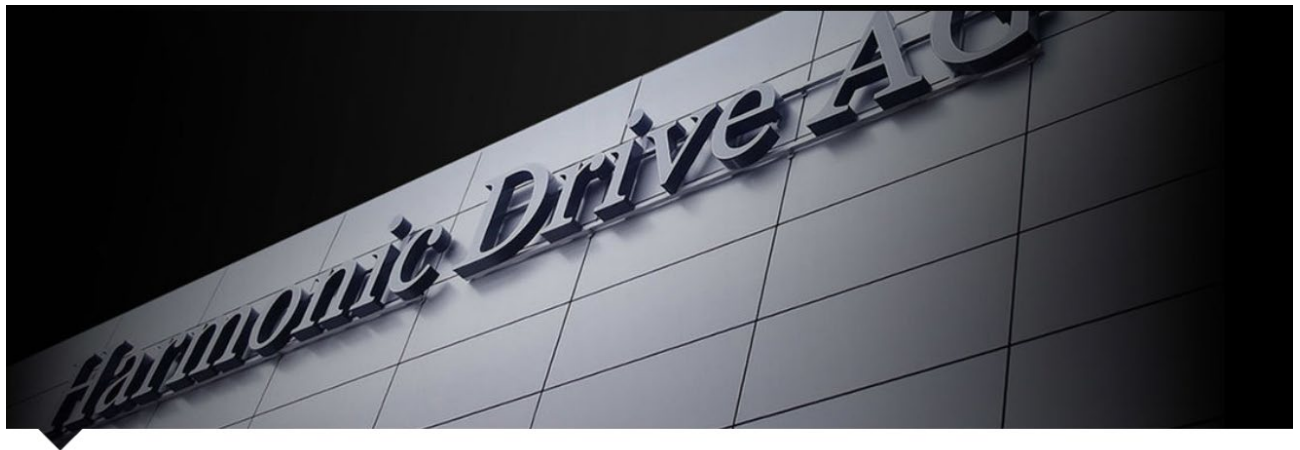
Technical data	F03
Cable structure	(4x(2x0,15)+4x0,15+2x0,5)
Number of cores	14
Colour code	wt/bk, wt/rd, wt/bl, wt/gn, wtbl, wtbk, wtrd, wtbr, rd, bk
Temperature, flexible	-40°C to +80°C
Temperature, fixed	-50°C to +80°C
Rated voltage, signal	450 V
Rated voltage, power	
Oil resistance (DIN EN 50363-10-2)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	
a max, acceleration	
Min. bending factor	
Bending radius, flexible	5 x d
Bending radius, fixed	10 x d
Outer diameter Ø	Ø 7,7 mm
Weight	100 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL (E310776; Style 1589 + 2502, 30 C/80°C

6.2.4 Feedback Cable AFC F04

Technical data	F04
Cable structure	(3x(2x0,14)+4x0,14+2x0,5) Topgeber 700657
Number of cores	12
Colour code	gn, ye, bk, br, rd, or, gn, bl, wt/ye, wt/bk, br/rd, br/bl
Temperature, flexible	-30°C to +80°C
Temperature, fixed	-40°C to +80°C
Rated voltage, signal	300 V
Rated voltage, power	
Oil resistance (DIN EN 50363-10-2)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	
a max, acceleration	
Min. bending factor	
Bending radius, flexible	10 x d
Bending radius, fixed	6 x d
Outer diameter Ø	Ø 8,9 mm
Weight	120 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL AWM Style 20233 und 20236

6.2.5 Feedback Cable AFC F05

Technical data	F05
Cable structure	(3x(2x0,14)+4x0,14+4x0,25+2x0,5)
Number of cores	16
Colour code	gn/ye, br/bk, rd/or, gr, bl, wt/ye, wt/bk, br/ye, br/gr, gn/bk, gn/rd, br/rd, br/bl
Temperature, flexible	-20°C to +70°C
Temperature, fixed	-40°C to +80°C
Rated voltage, signal	30 V
Rated voltage, power	
Oil resistance (DIN EN 50363-10-2)	yes
Flame retardant	yes
Halogen free	yes
Silicone free	yes
Capable for energy chains	yes
v max, traversing speed	300 m/s
a max, acceleration	50 m/s ²
Min. bending factor	10 million
Bending radius, flexible	7,5 x d
Bending radius, fixed	4 x d
Outer diameter Ø	Ø 9,4 mm
Weight	131 kg/km
Outer jacket	PUR
Approvals	CE, RoHS, UL AWM Style 20233 und 20236



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