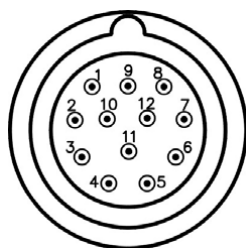
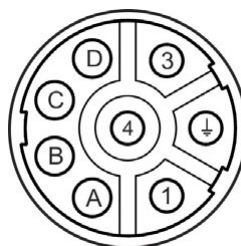
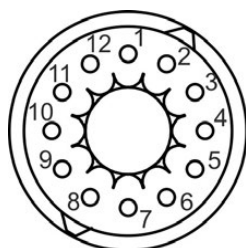
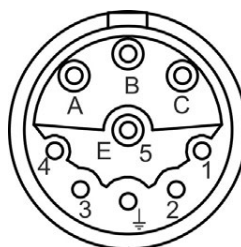
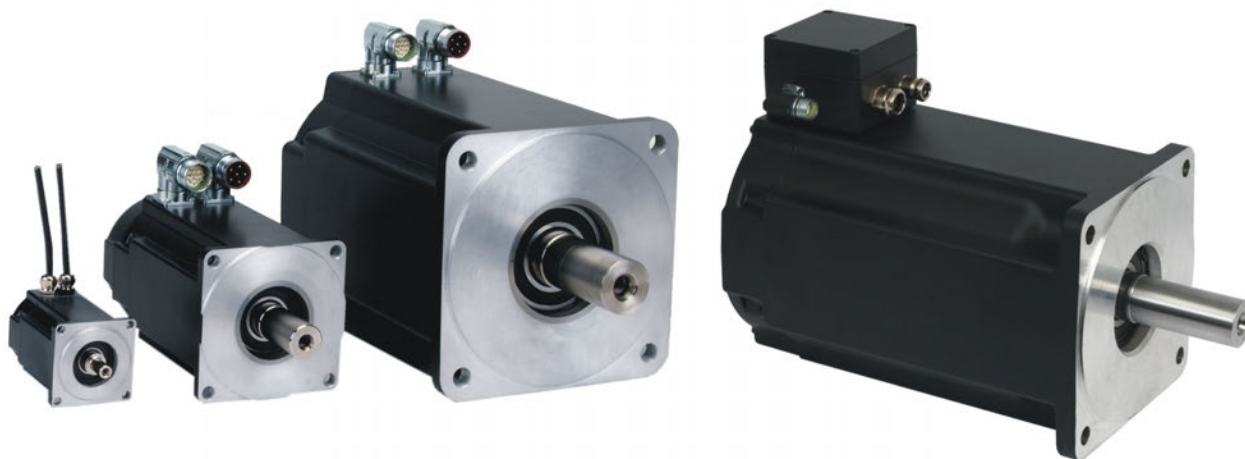


# AKM

## Part number Scheme and Connectivity

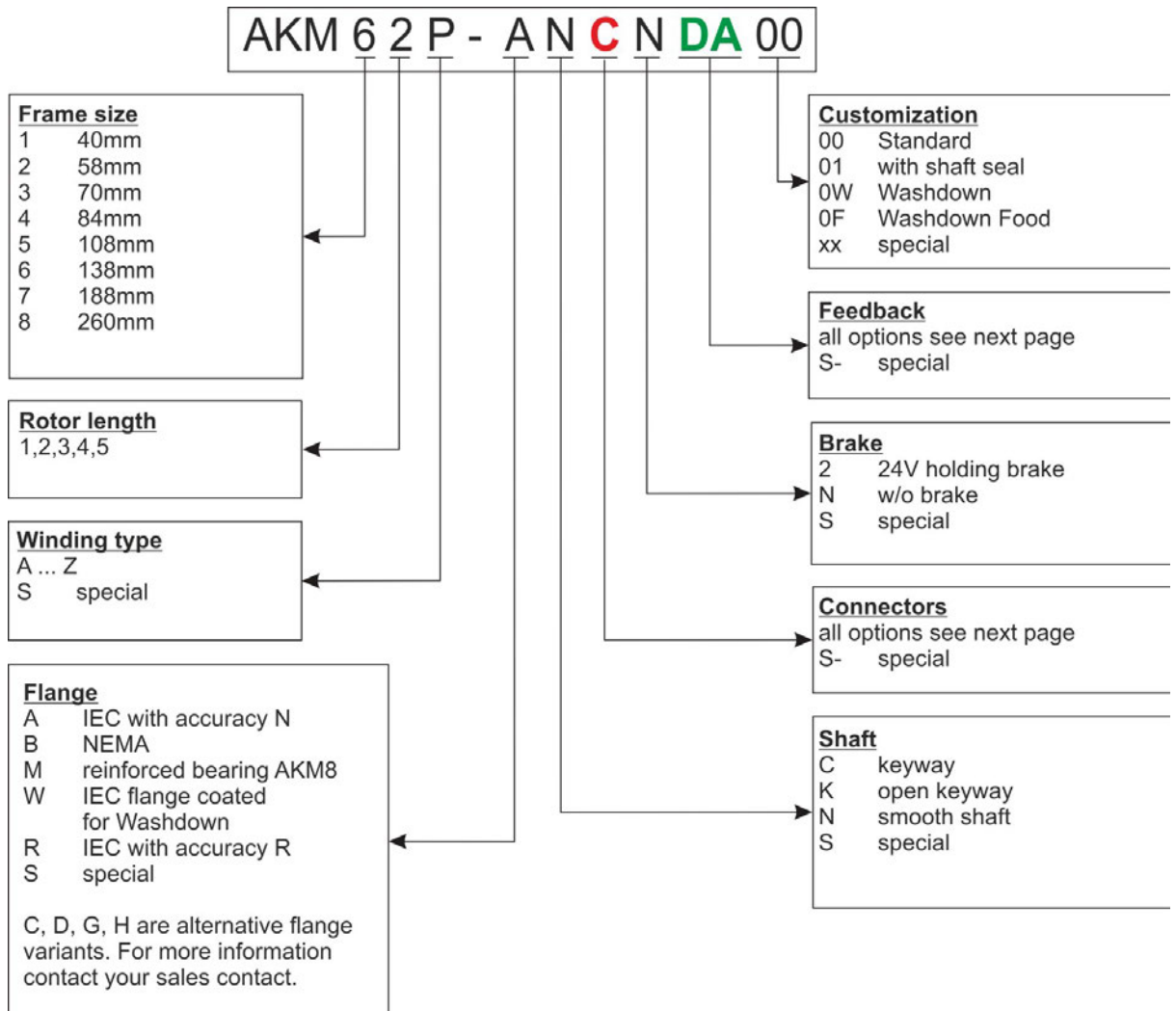


Edition December 2015

# 1 AKM Connector Codes and Pinout

## 1.1 Part number scheme

Use the part number scheme for product identification only, not for the order process, because not all theoretical combinations of features are possible.



## 1.2 Connector Options (C)

Technical description of used connectors see Product Wiki ([Mating Connectors](#)).

### Connector Description

Connector	Usage*	Contacts	max. Current [A]	max. Cross Section[mm <sup>2</sup> ]	Protection Class
		Power/Signal	Power/Signal	Power/Signal	
M40 (Size 1.5)	Power & Brake	4 / 2	75 / 30	16 / 4	IP65
M12	DRIVE-CLiQ	- / 8	- / 2	- / 0,5	IP65
M23-6	DRIVE-CLiQ	6 / -	30 / -	4 / -	IP65
M23 SpeedTec Ready (Size 1)	Power & Brake	4 / 4	30 / 10	4 / 1.5	IP65
	Feedback	- / 12	- / 10	- / 0.5	IP65
	Feedback	- / 17	- / 9	- / 0.5	IP65
i-tec	Hybrid	4 / 5	14 / 3.6	1.5 / 0.75	IP65
y-tec	Power & Brake	4 / 5	14 / 3.6	1.5 / 0.75	IP65
	Feedback	- / 12	- / 5	- / 0.75	IP65
	Feedback	- / 15	- / 5	- / 0.75	IP65
Terminal box	Power & Brake	4 / 2	150 / 15	25 / 2.5	IP65

\* Hybrid means: Power and Feedback on the same connector and in one cable

### Reference Connector-Motor

PTC*	KTY*	Connection	Usable with	Position of connection
B	1	2 SpeedTec Ready connectors	AKM2	Angular, rotatable, motor mounted
C	7	2 SpeedTec Ready connectors	AKM1-AKM2	0.5m cable mounted
C	1	2 SpeedTec Ready connectors	AKM3-AKM7 ( $\leq 22A$ )	Angular, rotatable, motor mounted
D**	D**	1 i-tec Hybrid connector	AKM1	Motor mounted
D**	D**	1 Hybrid connector SpeedTec Ready	AKM2-AKM6	Angular, rotatable, motor mounted
G	-	2 SpeedTec Ready connectors	AKM2-AKM6	Straight, motor mounted
H	1	1 power connector M40, 1 Feedback connector SpeedTec Ready	AKM7 & AKM82T	Angular, rotatable, motor mounted
-	R**	1 power connector M23-6, 1 Feedback connector M12	AKM4-AKM7 ( $\leq 22A$ )	Motor mounted. M23-6 angular, rotatable. M12 Straight.
T	2	1 Terminal box, 1 Feedback connector SpeedTec Ready	AKM8	Motor mounted
-	U**	1 power connector M23-6, 1 Feedback connector M12	AKM4-AKM7 ( $\leq 22A$ )	Straight, motor mounted
Y	1	1 y-tec connector	AKM1	Motor mounted

\* Temperatur sensor PTC or KTY

\*\* With connector options D, R, and U the temperature sensor type depends on the feedback , see (→ # 5)

### 1.3 Feedback Options (DA)

Motor length depends on the built-in feedback device

Technical description of the feedback systems see Product Wiki ([MultiFeedback](#)).

#### 1.3.1 Feedback Description

Code	Description	Type	Remarks	Lines per rev.	# of revs.	usable with drives
1-	Comcoder	EPC 15T	Single turn, optical	1024	1	All
2-	Comcoder	EPC 15T	Single turn, optical	2048	1	All
AA	BiSS B Encoder	AD34/AD58	Single turn, optical	2048	1	All
AB	BiSS B Encoder	AD34/AD58	Multi turn, optical	2048	4096	All
C-	SFD	Size 10/15/21	Single turn, inductive, 4 lines	2 poles	1	AKD
CA	SFD3	Size 10/15/21	Single turn, inductive, 2 lines	2 poles	1	AKD
DA	EnDAT 2.1 Encoder	ECN1113/1313	Single turn, optical	512/2048*	1	All
DB	EnDAT 2.1 Encoder	EQN1125/1325	Multi turn, optical	512/2048*	4096	All
LA	EnDAT 2.1 Encoder	ECI1118/1319	Single turn, inductive	16/32**	1	All
LB	EnDAT 2.1 Encoder	EQI1130/1331	Multi turn, inductive	16/32**	4096	All
MA	DRIVE-CLiQ Encoder	ECN1324S	Safety Single turn, optical	24 Bit	1	Siemens
MB	DRIVE-CLiQ Encoder	EQN1336S	Safety Multi turn, optical	24 Bit	4096	Siemens
GA	HIPERFACE Encoder	SKS36	Single turn, optical	128	1	Sx
GB	HIPERFACE Encoder	SKM36	Multi turn, optical	128	4096	Sx
GC	HIPERFACE Encoder	SEK34	Single turn, capacitive	16	1	Sx
GD	HIPERFACE Encoder	SEL34	Multi turn, capacitive	16	4096	Sx
GE	HIPERFACE DSL Encoder	EKS36	Single turn, optical	128	1	AKD
GF	HIPERFACE DSL Encoder	EKM36	Multi turn, optical	128	4096	AKD
GJ	HIPERFACE Encoder	SKS36	Single turn, optical	128	1	AKD
GK	HIPERFACE Encoder	SKM36	Multi turn, optical	128	4096	AKD
GM	Safe HIPERFACE Encoder	SKS36S	Safety, like <b>GJ</b> , SIL2, PLd, Cat.3	128***	1	AKD
GN	Safe HIPERFACE Encoder	SKM36S	Safety, like <b>GK</b> , SIL2, PLd, Cat.3	128***	4096	AKD
R-	Resolver	Size 10/15/21	Single turn, inductive	2 poles	1	All

\* x/y data for AKM2-4/AKM5-8

\*\* x/y data for AKM2-3/AKM4-8

\*\*\* Certificates for safety feedbacks: see Product-WIKI ([Approvals](#)) or Kollmorgen website.

## 1.3.2 Reference Feedback-Motor

Connector code (PTC/KTY)		B/1	C/1	C/7 (cable)	D/D	G/-	H/1	-/R	T/2	-/U	Y/1
Code	Feedback	Usable with AKM...									
1-	Comcoder	2	3-7	1-2	-	2-6	7,82T	-	8	-	1
2-	Comcoder	2	3-7	1-2	-	2-6	7,82T	-	8	-	1
AA	BiSS B	2	3-7	2	-	2-6	7,82T	-	8	-	-
AB	BiSS B	2	3-7	2	-	2-6	7,82T	-	8	-	-
C-	SFD*	2	3-7	1-2	1-6 (PTC)	2-6	7,82T	-	8	-	1
CA	SFD3	-	-	-	1-6 (KTY)	-	-	-	-	-	-
DA	EnDAT 2.1	2	3-7	2	-	2-6	7,82T	-	8	-	-
DB	EnDAT 2.1	2	3-7	2	-	2-6	7,82T	-	8	-	-
LA	EnDAT 2.1	2	3-7	2	-	2-6	7,82T	-	8	-	-
LB	EnDAT 2.1	2	3-7	2	-	2-6	7,82T	-	8	-	-
MA	DRIVE-CLiQ**	-	-	-	-	-	-	4-7	-	4-7	-
MB	DRIVE-CLiQ**	-	-	-	-	-	-	4-7	-	4-7	-
GA	Hiperface	2	3-7	2	-	2-6	7,82T	-	8	-	-
GB	Hiperface	2	3-7	2	-	2-6	7,82T	-	8	-	-
GC	Hiperface	-	-	1	-	-	-	-	-	-	1
GD	Hiperface	-	-	1	-	-	-	-	-	-	1
GE	Hiperface DSL	-	-	-	2-6 (KTY)	-	-	-	-	-	-
GF	Hiperface DSL	-	-	-	2-6 (KTY)	-	-	-	-	-	-
GJ	Hiperface	2	3-7	2	-	2-6	7,82T	-	8	-	-
GK	Hiperface	2	3-7	2	-	2-6	7,82T	-	8	-	-
GM	Safe Hiperface***	2	3-7	2	-	2-6	7,82T	-	8	-	-
GN	Safe Hiperface***	2	3-7	2	-	2-6	7,82T	-	8	-	-
R-	Resolver	2	3-7	1-2	-	2-6	7,82T	-	8	-	1

\* no brake

\*\* temperature sensor according to current Siemens requirements. For more information contact Kollmorgen.

\*\*\* with PTC temperature sensor only

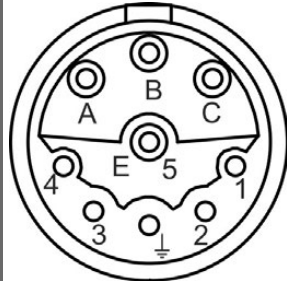



## 2 Connector Pinout

All connector views: facing front. Abbreviations used :

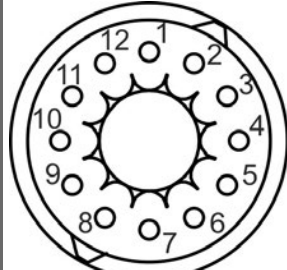
<b>U</b>	Motor phase U	<b>BR</b>	Motor holding brake	<b>Up</b>	Sensor Voltage supply
<b>V</b>	Motor phase V	<b>TH</b>	Thermal sensor	<b>0V</b>	Ground for Sensor Voltage supply
<b>W</b>	Motor phase W	<b>Z</b>	Zero pulse		
<b>PE</b>	Protection Earth	<b>n.c.</b>	not connected		

### 2.1 Connector codes 1, Y: AKM1

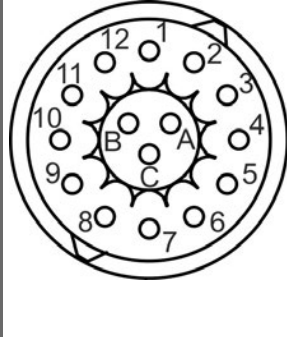
#### 2.1.1 Power

	<table border="1"> <thead> <tr> <th>Pin</th> <th>Function</th> <th>Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BR +</td> <td>A</td> <td>U</td> </tr> <tr> <td>2</td> <td>BR -</td> <td>B</td> <td>W</td> </tr> <tr> <td>3</td> <td>n.c.</td> <td>C</td> <td>V</td> </tr> <tr> <td>4</td> <td>n.c.</td> <td>E</td> <td>n.c.</td> </tr> <tr> <td>5</td> <td>n.c.</td> <td></td> <td>PE</td> </tr> </tbody> </table>	Pin	Function	Pin	Function	1	BR +	A	U	2	BR -	B	W	3	n.c.	C	V	4	n.c.	E	n.c.	5	n.c.		PE
Pin	Function	Pin	Function																						
1	BR +	A	U																						
2	BR -	B	W																						
3	n.c.	C	V																						
4	n.c.	E	n.c.																						
5	n.c.		PE																						

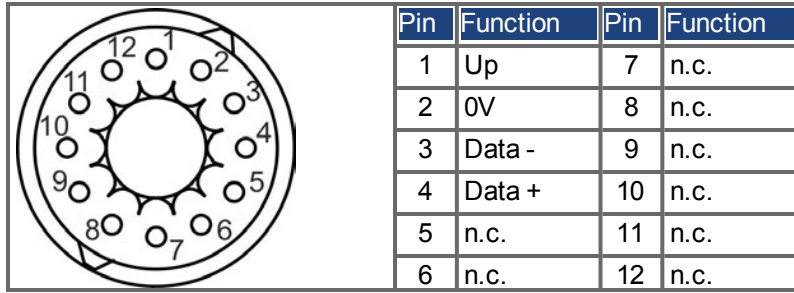
#### 2.1.2 Resolver (Feedback code R-)

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Pin	Function	Pin	Function																										
1	n.c.	7	S2, cos+																										
2	TH +	8	S1, sin+																										
3	S4, cos-	9	R1, ref+																										
4	S3, sin-	10	n.c.																										
5	R2, ref-	11	n.c.																										
6	TH -	12	n.c.																										

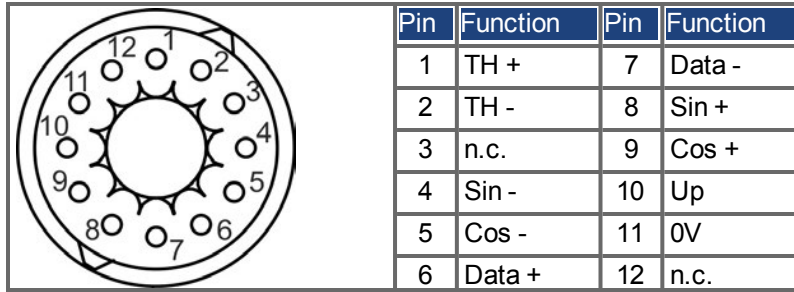
#### 2.1.3 ComCoder (Feedback code 1-, 2-)

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Pin	Function	Pin	Function																																		
1	B +	9	TH -																																		
2	B -	10	Up																																		
3	A +	11	n.c.																																		
4	A -	12	n.c.																																		
5	Z +	A	Hall U																																		
6	Z -	B	Hall V																																		
7	0V	C	Hall W																																		
8	TH +																																				

**2.1.4 SFD (Feedback code C-)**



**2.1.5 Encoder (Feedback codes GC, GD - S300...S700 drives only)**




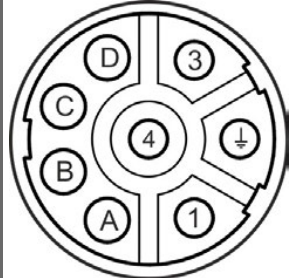
## 2.2 Connector codes 1, 2, 7, B, C, G, H, T: AKM1 - AKM8

Model	Connector code (PTC)	Connector code (KTY 84-130)
AKM1	C	7
AKM2	B, C	1, 7
AKM3 - AKM7	C	1
AKM2 - AKM6	G	-
AKM7, AKM82T	H	1
AKM8	T	2


### 2.2.1 Power


Connector codes 1, 7, B, C, G for AKM1 - AKM7

Pin	Function	Pin	Function
1	U	A	BR +
	PE	B	BR -
3	W	C	n.c
4	V	D	n.c.



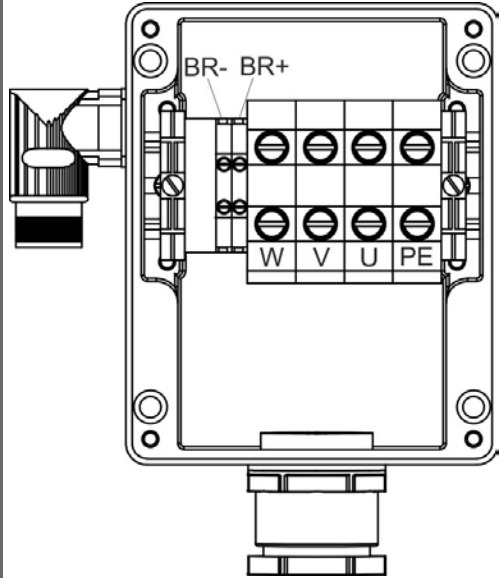
Connector code 1, H for AKM7, AKM82T

Pin	Function	Pin	Function
U	U	+	BR +
V	V	-	BR -
W	W		
	PE		



Connector code 2, T for AKM8

Terminal	Function	Terminal	Function
U	Phase U	BR -	Brake -
V	Phase V	BR +	Brake +
W	Phase W	PE	Protective Earth





### 2.2.2 Resolver (Feedback code R-)

	Pin	Function	Pin	Function
	1	n.c.	7	S2, cos+
	2	TH +	8	S1, sin+
	3	S4, cos-	9	R1, ref+
	4	S3, sin-	10	n.c.
	5	R2, ref-	11	n.c.
	6	TH -	12	n.c.

### 2.2.3 SFD (Feedback code C-)

	Pin	Function	Pin	Function
	1	Up	7	n.c.
	2	0V	8	n.c.
	3	Data -	9	n.c.
	4	Data +	10	n.c.
	5	reserved (shield)	11	n.c.
	6	n.c.	12	n.c.

### 2.2.4 Encoder (Feedback codes Ax, Dx, Lx, Gx)

Model	Feedback code
AKM1	GC (Sx Drives), GD (Sx Drives)
AKM2 - AKM7	AA, AB, DA, DB, LA, LB, GA (Sxyz Drives), GJ/GM (AKD Drives), GB (Sxyz Drives), GK/GN (AKD Drives)

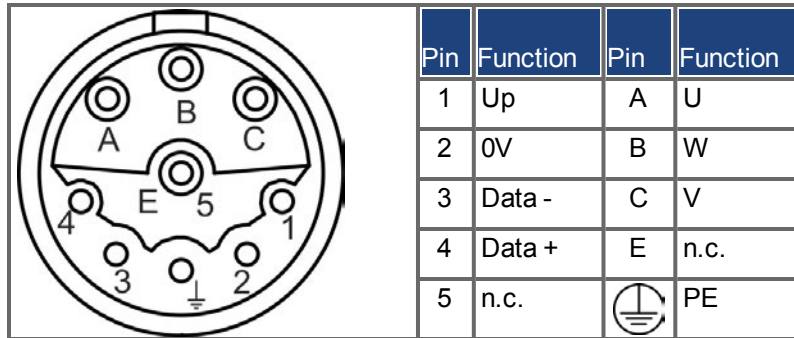
	Pin	Function	Pin	Function	Pin	Function
	1	B -	7	TH +	13	Data -
	2	0V	8	Clock +	14	TH -
	3	A -	9	B +	15	Clock -
	4	Up	10	Sense -	16	n.c.
	5	Data +	11	A +	17	n.c.
	6	n.c.	12	Sense +		

### 2.2.5 ComCoder (Feedback codes 1-, 2-)

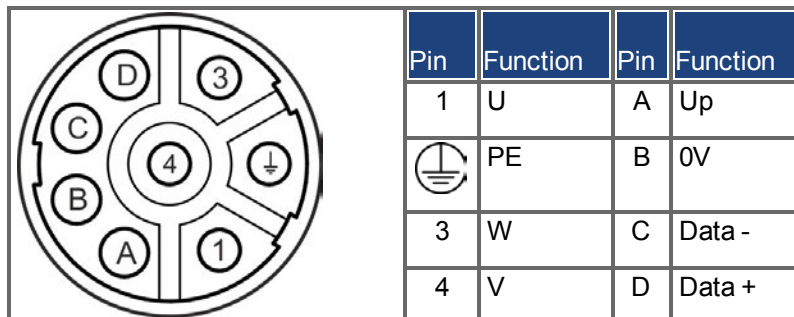
	Pin	Function	Pin	Function	Pin	Function
	1	B +	7	0V	13	n.c.
	2	B -	8	TH +	14	n.c.
	3	A +	9	TH -	15	Hall U
	4	A -	10	Up	16	Hall V
	5	Z +	11	n.c.	17	Hall W
	6	Z -	12	n.c.		

## 2.3 Connector code D: AKM1 - AKM6

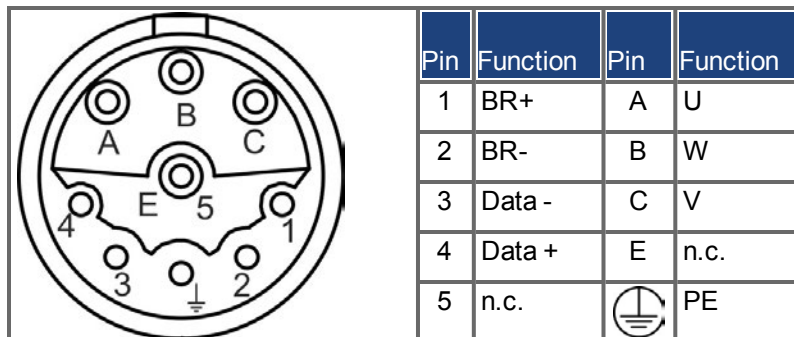
### 2.3.1 Power & SFD AKM1 (Feedback code C-)



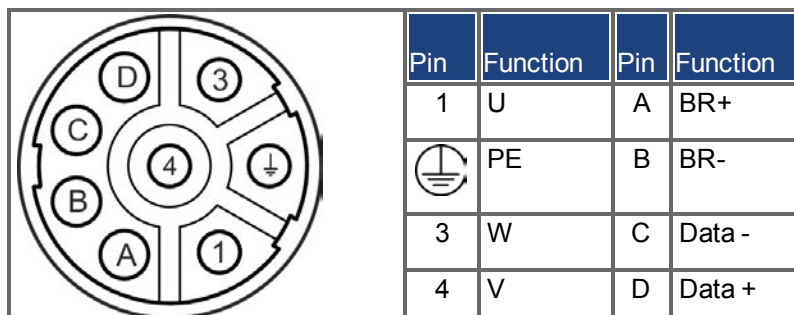
### 2.3.2 Power & SFD AKM2 - AKM6 (Feedback code C-)



### 2.3.3 Power & SFD3 AKM1 (Feedback codes CA)




### 2.3.4 Power & SFD3/DSL AKM2 - AKM6 (Feedback codes CA, GE, GF)



## 2.4 Connector codes R & U: AKM4 - AKM7

### 2.4.1 Power

Pin	Function	Pin	Function
1	U	4	BR +
2	V	5	BR -
	PE	6	W

### 2.4.2 DRIVE-CLiQ (Feedback codes MA, MB)

Pin	Function	Pin	Function
1	Up	5	0V
2	n.c.	6	TXN
3	RXP	7	TXP
4	RXN	8	n.c.

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We are committed to quality customer service. In order to serve in the most effective way, please contact your local sales representative for assistance.

If you are unaware of your local sales representative, please contact the Customer Support.

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Product WIKI

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