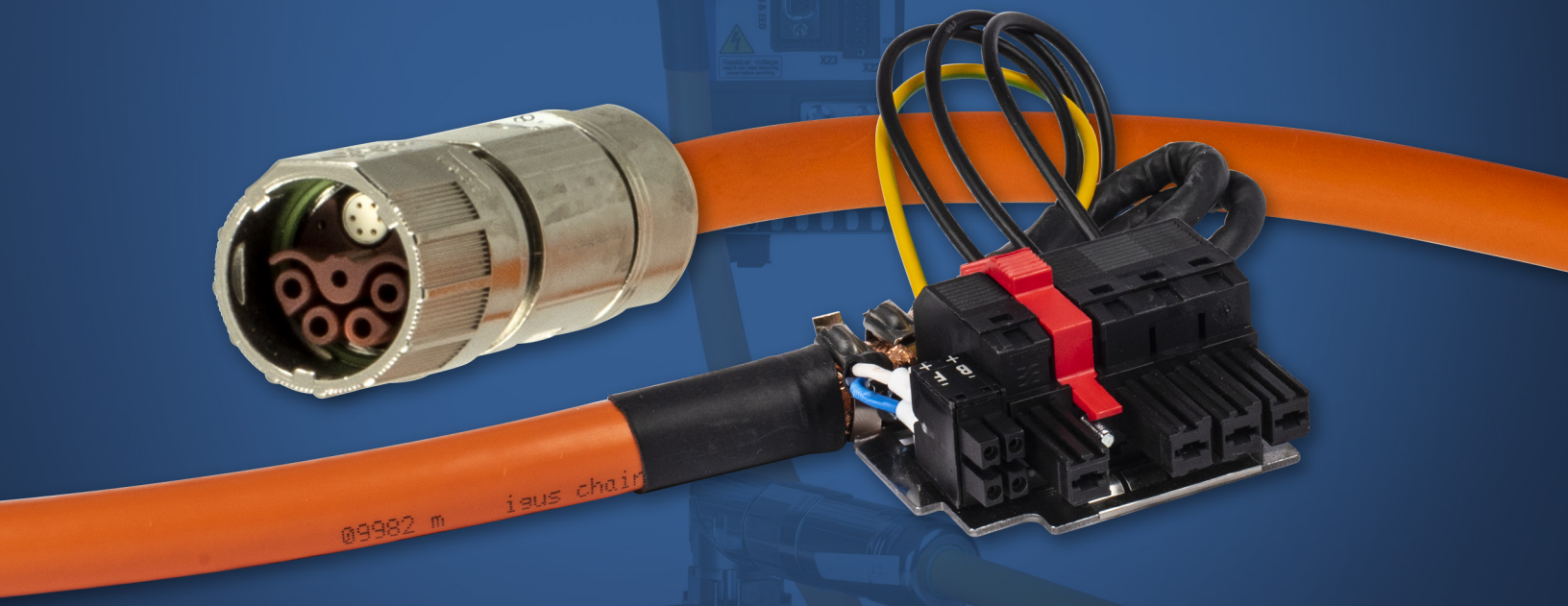
Kollmorgen 2G Cable Guide

Connecting AKM Family Motors with AKD Family Drives

Please visit **www.kolllmorgen.com** for AKM to AKD cable options



KOLLMORGEN®

Because Motion Matters™

Kollmorgen: Your partner. In Motion.

Every solution comes from a real understanding of the challenges facing machine designers and users.

Innovators consistently rate Kollmorgen as one of their best motion systems manufacturing partners. Whether you are looking for classic servo motors, direct-drive servo motors, stepper motors, drives & amplifiers, gearing, actuation, or multi-axis motion controllers, Kollmorgen is one of the few companies in the world who actually designs and manufactures all of these products.

Our customers are leaders in many industries such as Aerospace & Defense, Printing, Packaging & Converting, Food & Beverage Processing, Medical Imaging, In Vitro Diagnostics & Laboratory Automation, Pharmaceutical Manufacturing, Material Forming and Cutting, Oil & Gas, and Robotics. Kollmorgen is also a leader in Warehouse Automation, including complete AGV systems, software, awareness and autonomy.

Our Automation Solutions can be found on Mars and in space, ships and submarines, O&G drilling and metrology, surgical robots and laser eye surgery, even inside artificial hearts. These are just a few applications that demand high-performance and high-quality while satisfying their specific needs.

Because motion matters, it's our focus: Motion can distinctly differentiate a machine and deliver a marketplace advantage by increasing its performance and dramatically improving overall equipment effectiveness (OEE).

High-performance motion can make your customer's machine more reliable and energy-efficient, enhance accuracy and improve operator safety. Motion also represents endless possibilities for innovation.

We've always understood this potential, and thus have kept motion at our core and in our Vision, Mission & Values, relentlessly developing products that offer precise control of torque, velocity and position accuracy in machines that rely on complex motion.

KOLLMORGEN®

Because Motion Matters™

Removing the Barriers of Design, Sourcing, and Time

At Kollmorgen, we know that OEM engineers can achieve a lot more when obstacles aren't in the way. So, we clear obstacles in three important ways:

Integrating Standard and Custom Products

The optimal solution is often not clear-cut. Our application expertise allows us to modify standard products or develop totally custom solutions across our whole product portfolio so that designs can take flight.

Providing Motion Solutions, Not Just Components

As companies reduce their supplier base and have less engineering manpower, they need a total system supplier with a wide range of integrated solutions. Kollmorgen offers complete solutions as well as motion subsystems that combine programming software, engineering services and best-in-class motion components.

Global Footprint

With direct sales, engineering support, manufacturing facilities, and distributors spanning the Americas, Europe, the Middle East, and Asia, we're close to OEMs worldwide. Our proximity helps speed delivery and lend support where and when they're needed.

Financial and Operational Stability

Kollmorgen is part of Altra Industrial Motion. A key driver in the growth of all Altra divisions is the Altra Business System, which relies on the principle of "kaizen" – or continuous improvement. Using world-class tools, cross-disciplinary teams of exceptional people evaluate processes and develop plans that result in superior performance.

Kollmorgen: Your partner. In Motion.

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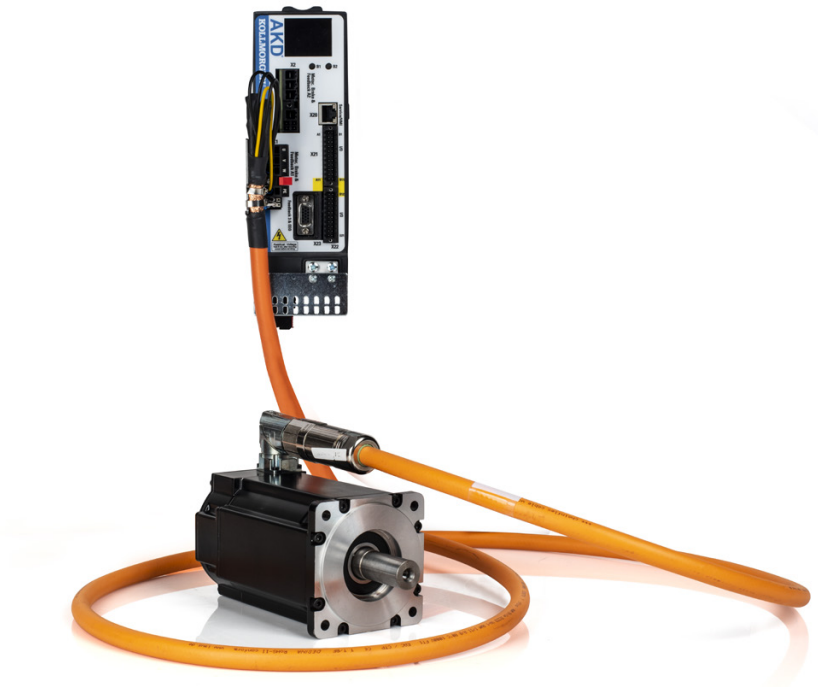


Why Kollmorgen 2G Cables?

High-performance servo systems require high signal integrity. Electrical noise in the system can cause degraded performance or even instability. Therefore, well-designed connectors and cables are as critical to the system as are motors, drives and controls. A system is only as good as its weakest link.

Kollmorgen guarantees the performance and quality of its servo systems only when you use Kollmorgen-supplied motors, drives and cables. Not all cables are created equal.

Kollmorgen has done the hard work for you: The cables in this Selection Guide have been tested with our motors, guaranteeing the highest level of performance. This guide will also provide the detail behind industry standards to assist selecting the right cable for specific application needs.

Kollmorgen Cable Features	Benefits
100% shielded end-to-end with prewired Kollmorgen connectors	Mitigate radiated noise from cable and noise immunity from external sources
Large-diameter power conductors	Able to handle peak currents needed for servo control Minimal impedance in the cables maximizes efficiency and noise immunity
Cable Flex rating	Flexible cables, suitable for trailing, last longer when connected to a moving motor.
Cable bend radius	Tight-bend-radius cables are useful when you have to jam the cables into a tight fit such as a sharp corner or smaller cable track
High-voltage rated	Meets approvals such as UL and CE

Kollmorgen 2G Cable Overview

Kollmorgen offers high performance servo cables to ensure the drive and motor operate at peak performance. Every cable in this Selection Guide has passed Kollmorgen's rigorous tests. Our support team can provide you the optimal cable configuration for any given combination of drive, motor, and environment.

Dual Cables

Dual cable solutions separate power from feedback and typically allow for longer distances between the drive and motor. Dual cables are available for Resolver feedback on AKM®2G motors.

Hybrid Cables

Hybrid cables combine power conductors and feedback-signal conductors in one cable. Less cable means lower cost, reduced weight, and fewer connectors on the motor. Hybrid Cables are available for SFD3, HIPERFACE DSL® and EnDat® feedback on AKM2G motors.

Additional Dual Cable Feedback Options on AKM® motors:

- SFD (Smart Feedback Device)
- Single & Multi-turn EnDat® sine encoders
- Single & Multi-turn BiSS sine encoders
- Single & Multi-turn HIPERFACE® sine encoders
- Up to 5000 lines/rev commutating encoders

Kollmorgen 2G Cable Specifications

Kollmorgen 2G Cable Selection Steps

Use appropriate cable selection table below using following inputs

- Drive series used – AKD®2G vs AKD®
- Single hybrid cable vs dual cables for power and feedback
- Feedback used – SFD3 vs HIPERFACE DSL®, etc.
- Cable material – PUR vs PVC

Cable Jacket Material - PUR Versus PVC

For the cable jacket material, PVC is Polyvinyl Chloride and PUR is Polyurethane. Both jacket materials are available and used globally, but PVC/PUR recommendations are made based on regional agency preferences. PVC is more commonly used in North America whereas PUR is more commonly used in Europe. PVC is better for flame retardant properties (burning fast) releasing potential hazardous gases whereas PUR is less flame retardant releasing less gases when burned.

Cable Part Number Overview:

F5 – 10 – FB2 – C2 – 00 – XXXX00

- F5 – Cable Version
- 10 – Drive Connector
- FB2 – Wire Cross Section
- C2 – Motor Mating Connector
- 00 – Customization
- XXXX00 – Length

Cable Version:

The cables for the AKM® and AKM®2G will come in 2 different versions depending on your motor specifications. If the motor has a single connector, or hybrid style connection, you will select one of our hybrid cables. The hybrid cables begin with "Hx". The "x" will be replaced with either a 2 or a 6 depending on the cable jacket material you desire.

For motors with dual connectors, both a power and feedback cable will be required for you system. The power cables will begin with "Px" and the "x" will be replaced with a 1, 2, 5, or 6 depending on the cable jacket material and if the cable requires a brake pair. The feedback cable will begin with a "Fx" and will have either a 1 or a 5 depending on the cable jacket material required.

The Cable Nomenclature, page 34, and cable lookup table section, pages 8-14, will define which option matches with each cable jacket and brake type.

Drive Connection:

The drive connection will depend on the drive pairing with the motor. The drive connectors on the AKD are different than the AKD2G except for the d-sub feedback connector, so it is important to pick the correct drive in the cable selection process. For example, if an AKD is paired with an AKM2G with a resolver feedback option. The resulting feedback cable will be a F1-10-FB2-C2-00-001000. The remaining pairing options can be found in the cable lookup tables or in the cable nomenclature on page 34.

Wire Cross Section:

The wire cross section is going to drive the cable continuous current rating. The ratings are established based on the IEC 60364-5-52 standard.

F5 – 10 – FB2 – C2 – 00 – XXXX00*
Cable Version | Drive Connector | Wire X-section | Motor Mating Connector | Customization | Length

Motor Mating Connection:

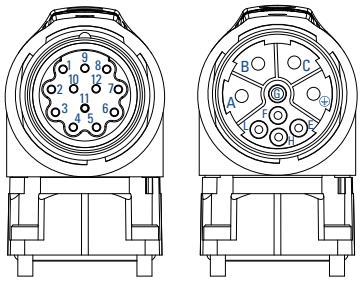
The AKM® and AKM®2G motors each have a motor connector(s) that will be used to supply power and send feedback signals between the motor and drive. There are several types of motor mating connectors, which we can find on different motor feedbacks. For example, the AKM2G with a Smart Feedback Device (SFD3), uses a hybrid cable that combines the motor power and feedback into a single connector. Another example, is the AKM2G with a Resolver feedback option. The resolver feedback will use a dual connector, one connector for power and one for the feedback. The connector specifics can be found on pages 18-29 under each motor's specifications section. The motor connector options can be identified in the AKM or AKM2G part number as seen below and can be matched to the "Motor Connector" column of the cable lookup tables.

AKM®2G Brushless Servo Motor

AKM2G – 6 2 A – A N C N DA 0 0

AKM® Brushless Servo Motor

AKM – 6 2 P – A N C N DA 00



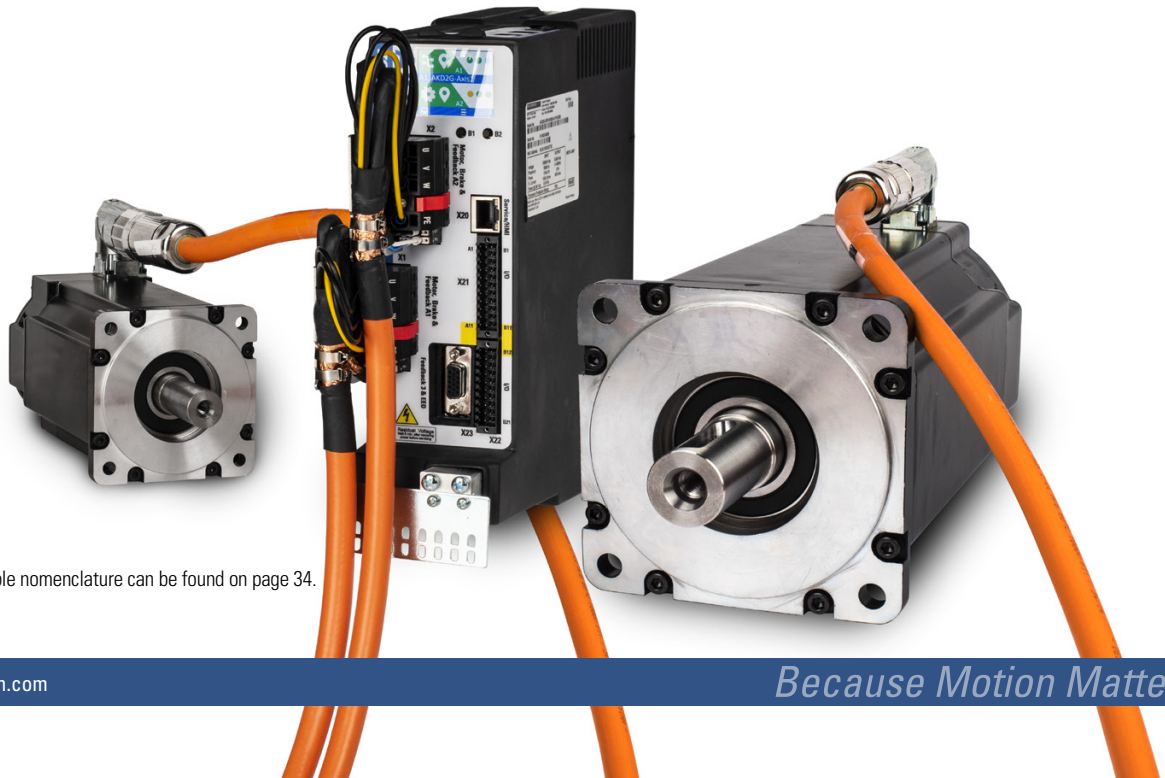
C- Dual Connector Option

Customization:

The standard cable will be designated with a "00" option. If you would like to request customizations, please contact your local application support team.

Length:

The length of the cable will come as a standard in increments of 1 meter to 25 meters. Longer lengths are available upon request and application review. The length can also be customized in 0.5-meter, or smaller, increments. For example, if you had a 6-meter cable the part number would take the form of: F5-10-FB2-C2-00-006000. And if you had a cable length of 15.5 meters, the part number would take the form of F5-10-FB2-C2-00-015500.

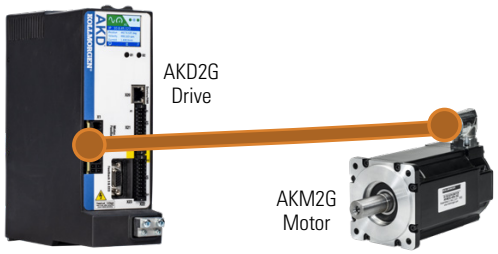


*Complete 2G Cable nomenclature can be found on page 34.

Kollmorgen 2G Cable Lookup Tables

AKD®2G Servo Drive Section

Hybrid Single Cable Options



Smart Feedback Device (SFD3) – AKM®2G motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid Cable (PUR)[2]	Hybrid Cable (PVC)[3]
SFD3 (CA)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	SpeedTec® (D)	Rms<15	H2-21-015-A1-00-XXXX00	H6-21-015-A1-00-XXXX00

HIPERFACE DSL® – AKM®2G motor to AKD®2G drive

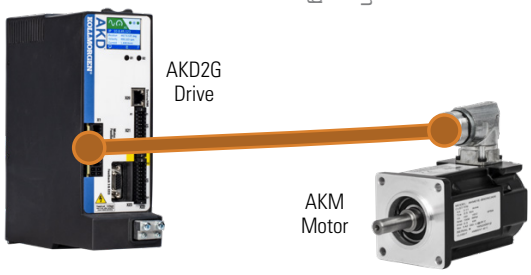
Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid Cable (PUR)[2]	Hybrid Cable (PVC)[3]
HIPERFACE DSL (GU)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	htec® (D)	Rms<15	H2-21-015-B1-00-XXXX00	H6-21-015-B1-00-XXXX00

EnDat® 2.2 – AKM®2G motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid Cable (PUR)[2]	Hybrid Cable (PVC)[3]
EnDat 2.2 (LD)[4]	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	htec® (D)	Rms<15	H2-21-015-B2-00-XXXX00	NA

Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. PUR cables have a Polyurethane cable jacket material typically used in Europe
3. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America
4. Hybrid EnDat 2.2 - 22 cable requires X23 connector on AKD2G drive and only can be used with the X1 connector.

H6 – 21 – 015 – A5 – 00 – XXXX00*
Cable Version | Drive Connector | Wire X-section | Motor Mating Connector | Customization | Length



Smart Feedback Device (SFD3) – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid Cable (PUR)[2]	Hybrid Cable (PVC)[3]
SFD3 (CA)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	itec® AKM1 only	Rms<11	H2-21-010-C4-00-XXXX00	H6-21-010-C4-00-XXXX00
		SpeedTec® (D)	Rms<15	H2-21-015-A5-00-XXXX00	H6-21-015-A5-00-XXXX00

HIPERFACE DSL® – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid Cable (PUR)[2]	Hybrid Cable (PVC)[3]
HIPERFACE DSL (GE, GF)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	SpeedTec® (D)	Rms<15	H2-21-015-A5-00-XXXX00	H6-21-015-A5-00-XXXX00

Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. PUR cables have a Polyurethane cable jacket material typically used in Europe
3. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America

AKM1 itec Power + SFD3 Mating Connector

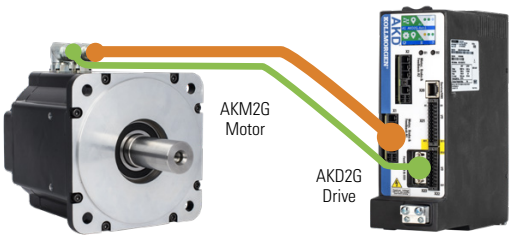
AKD2G Drive Connector

*Complete 2G Cable nomenclature can be found on page 34.

Kollmorgen 2G Cable Lookup Tables

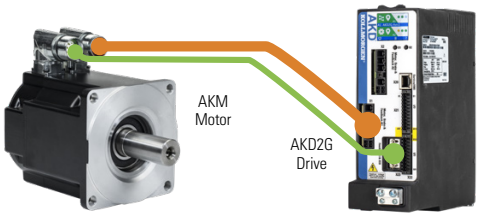
AKD®2G Servo Drive Section

Dual Cable Options – Power and Feedback



Resolver – AKM®2G motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
Resolver (R-)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	ytec® (Y)	Rms<15	No Brake	P1-21-015-C1-	P5-21-015-C1-	F1-10-FB2-C2-	F5-10-FB2-C2-
				Brake	P2-21-015-C1-	P6-21-015-C1-		
		SpeedTec® (C or G)	Rms<15	No Brake	P1-21-015-A1-	P5-21-015-A1-	F1-10-FB2-A2-	F5-10-FB2-A2-
				Brake	P2-21-015-A1-	P6-21-015-A1-		



Resolver – AKM® motor to AKD®2G drive

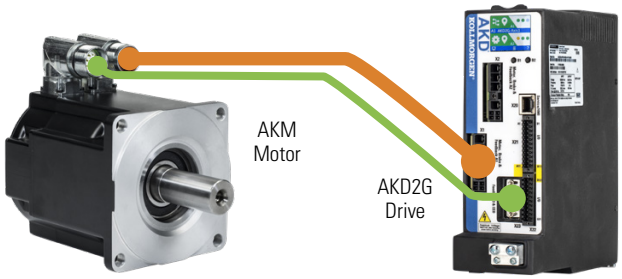
Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
Resolver (R-)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	ytec (Y)	Rms<15	No Brake	P1-21-015-C1-	P5-21-015-C1-	F1-10-FB2-C2-	F5-10-FB2-C2-
				Brake	P2-21-015-C1-	P6-21-015-C1-		
		SpeedTec (C or G)	Rms<15	No Brake	P1-21-015-A5-	P5-21-015-A5-	F1-10-FB2-A2-	F5-10-FB2-A2-
				Brake	P2-21-015-A5-	P6-21-015-A5-		

Smart Feedback Device – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
Smart Feedback Device (C-)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	ytec (Y)	Rms<15	No Brake	P1-21-015-C1-	P5-21-015-C1-	F1-18-FB3-C2-	F5-18-FB3-C2-
				Brake	P2-21-015-C1-	P6-21-015-C1-		
		SpeedTec (C or G)	Rms<15	No Brake	P1-21-015-A5-	P5-21-015-A5-	F1-18-FB3-A2-	F5-18-FB3-A2-
				Brake	P2-21-015-A5-	P6-21-015-A5-		

Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. PUR cables have a Polyurethane cable jacket material typically used in Europe
3. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America
4. Hybrid EnDat 2.2 - 22 cable requires X23 connector on AKD2G drive and only can be used with the X1 connector.

F5 – 10 – FB2 – C2 – 00 – XXXX00*
Cable Version – Drive Connector – Wire X-section – Motor Mating Connector – Customization – Length



Commutating Encoder – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
Sine/Incr. Encoder w/ Halls (Ex, 1-,2-)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	ytec® (Y)	Rms<15	No Brake	P1-21-015-C1-	P5-21-015-C1-	F1-20-FB4-C3-	F5-20-FB4-C3-
				Brake	P2-21-015-C1-	P6-21-015-C1-		
		SpeedTec® (C or G)	Rms<15	No Brake	P1-21-015-A5-	P5-21-015-A5-	F1-20-FB4-A3-	F5-20-FB4-A3-
				Brake	P2-21-015-A5-	P6-21-015-A5-		

EnDat®/BiSS Encoder – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
EnDat/BiSS (Ax, Dx, Lx)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	SpeedTec (C or G)	Rms<15	No Brake	P1-21-015-A5-	P5-21-015-A5-	F1-12-FB4-A3-	F5-12-FB4-A3-
				Brake	P2-21-015-A5-	P6-21-015-A5-		

HIPERFACE® Optical Sine Encoder – AKM® motor to AKD®2G drive

Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[2] + 00-XXXX00	Power Cable (PVC)[3] + 00-XXXX00	Feedback Cable (PUR)[2] + 00-XXXX00	Feedback Cable (PVC)[3] + 00-XXXX00
HIPERFACE (Gx)	AKD2G-SPx-6V03x AKD2G-SPx-6V06x AKD2G-SPx-6V12x AKD2G-SPx-7V03x AKD2G-SPx-7V06x AKD2G-SPx-7V12x	ytec (Y)	Rms<15	No Brake	P1-21-015-C1-	P5-21-015-C1-	F1-14-FB6-C2-	F5-14-FB6-C2-
				Brake	P2-21-015-C1-	P6-21-015-C1-		
		SpeedTec (C or G)	Rms<15	No Brake	P1-21-015-A5-	P5-21-015-A5-	F1-14-FB6-A3-	F5-14-FB6-A3-
				Brake	P2-21-015-A5-	P6-21-015-A5-		

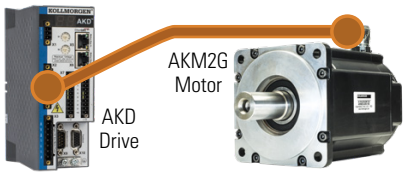
Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. PUR cables have a Polyurethane cable jacket material typically used in Europe
3. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America

*Complete 2G Cable nomenclature can be found on page 34.

Kollmorgen 2G Cable Lookup Tables

AKD® Servo Drive Section

Hybrid Single Cable Options



Smart Feedback Device (SFD3) – AKM®2G motor to AKD® drive

Voltage	Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid (PUR)[3]	Hybrid Cable (PVC)[4]
120-240	SFD3 (CA)	AKD-x00306 AKD-x00606	SpeedTec® (D)	Rms<15	H2-11-015-A1-00-XXXX00	H6-11-015-A1-00-XXXX00
		AKD-x01206 AKD-x02406	SpeedTec (D)	Rms<20[2]	H2-12-025-A1-00-XXXX00	H6-12-025-A1-00-XXXX00
			SpeedTec (J)	Rms<27	H2-12-040-A4-00-XXXX00	–
				Rms<34	H2-12-060-A4-00-XXXX00	–
240-480	SFD3 (CA)	AKD-x00307 AKD-x00607 AKD-x01207	SpeedTec (D)	Rms<15	H2-12-015-A1-00-XXXX00	H6-12-015-A1-00-XXXX00
		AKD-x02407	SpeedTec (D)	Rms<20[2]	H2-12-025-A1-00-XXXX00	H6-12-025-A1-00-XXXX00
			SpeedTec (J)	Rms<27	H2-12-040-A4-00-XXXX00	–
				Rms<34	H2-12-060-A4-00-XXXX00	–
		AKD-X04807	SpeedTec (J)	Rms<34	H2-13-060-A4-00-XXXX00	–

HIPERFACE DSL® – AKM®2G motor to AKD® drive

Voltage	Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid (PUR)[3]	Hybrid Cable (PVC)[4]
120-240	HIPERFACE DSL (GU)	AKD-x00306 AKD-x00606	htec® (D)	Rms<15	H2-11-015-B1-00-XXXX00	H6-11-015-B1-00-XXXX00
		AKD-x01206 AKD-x02406	htec (D)	Rms<20[2]	H2-12-025-B1-00-XXXX00	H6-12-025-B1-00-XXXX00
			htec (J)	Rms<27	H2-12-040-B3-00-XXXX00	–
				Rms<34	H2-12-060-B3-00-XXXX00	–
240-480	HIPERFACE DSL (GU)	AKD-x00307 AKD-x00607 AKD-x01207	htec (D)	Rms<15	H2-12-015-B1-00-XXXX00	H6-12-015-B1-00-XXXX00
		AKD-x02407	htec (D)	Rms<20[2]	H2-12-025-B1-00-XXXX00	H6-12-025-B1-00-XXXX00
			htec (J)	Rms<27	H2-12-040-B3-00-XXXX00	–
				Rms<34	H2-12-060-B3-00-XXXX00	–
		AKD-X04807	htec (J)	Rms<34	H2-13-060-B3-00-XXXX00	–

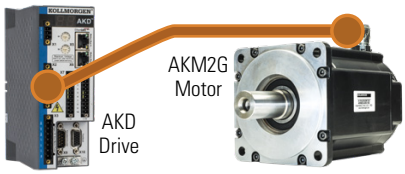
Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. To utilize full current rating of AKD-x0240x please use the htec M40 motor connector (J)
3. PUR cables have a Polyurethane cable jacket material typically used in Europe
4. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America

H2 – 12 – 025 – A1 – 00 – XXXX00*

H2 Cable Version; 12 Drive Connector; 025 Wire X-section; A1 Motor Mating Connector; 00 Customization; XXXX00 Length

AKD® Servo Drive Section

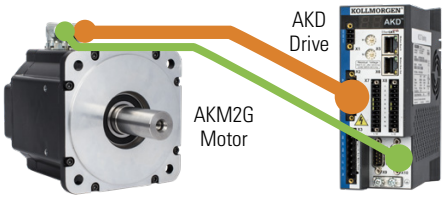
Hybrid Single Cable Options



EnDat® – AKM®2G motor to AKD® drive

Voltage	Motor Feedback	Drive	Motor Connector	Current Rating[1]	Hybrid (PUR)[3]	Hybrid Cable (PVC)[4]
120-240	EnDat 2.2 (LD)	AKD-x00306 AKD-x00606	htec® (D)	Rms<15	H2-14-015-B2-00-XXXX00	–
		AKD-x01206 AKD-x02406	htec (D)	Rms<15[2]	H2-15-015-B2-00-XXXX00	–
				Rms<27	H2-15-040-B2-00-XXXX00	–
240-480	EnDat 2.2 (LD)	AKD-x00307 AKD-x00607 AKD-x01207	htec (D)	Rms<15	H2-15-015-B2-00-XXXX00	–
		AKD-x02407	htec (D)	Rms<15	H2-15-015-B2-00-XXXX00	–
				Rms<27	H2-15-040-B2-00-XXXX00	–

Dual Cable Options – Power and Feedback



Resolver – AKM®2G motor to AKD® drive

Voltage	Motor Feedback	Drive	Motor Connector	Current Rating[1]	Brake Option	Power Cable (PUR)[3] + 00-XXXX00	Power Cable (PVC)[4] + 00-XXXX00	Feedback Cable (PUR)[3] + 00-XXXX00	Feedback Cable (PVC)[4] + 00-XXXX00
120-240	Resolver (R-)	AKD-x00306 AKD-x00606	ytec® (Y)	Rms<15	No Brake	P1-11-015-C1-	P5-11-015-C1-	F1-10-FB2-C2-	F5-10-FB2-C2-
					Brake	P2-11-015-C1-	P6-11-015-C1-		
			SpeedTec® (C or G)		No Brake	P1-11-015-A1-	P5-11-015-A1-	F1-10-FB2-A2-	F5-10-FB2-A2-
					Brake	P2-11-015-A1-	P6-11-015-A1-		
240-480	Resolver (R-)	AKD-x00307 AKD-x00607 AKD-x01207 AKD-x02407	ytec (Y)	Rms<15	No Brake	P1-12-015-C1-	P6-12-015-C1-	F1-10-FB2-C2-	F5-10-FB2-C2-
					Brake	P2-12-015-C1-	P1-12-015-C1-		
			SpeedTec (C or G)	Rms<15	No Brake	P1-12-015-A1-	P5-12-015-A1-	F1-10-FB2-A2-	F5-10-FB2-A2-
					Brake	P2-12-015-A1-	P6-12-015-A1-		
				Rms<20[2]	No Brake	P1-12-025-A1-	P5-12-025-A1-		
					Brake	P2-12-025-A1-	P6-12-025-A1-		
				Rms<27[2]	No Brake	P1-12-040-A1-	P5-12-040-A1-		
					Brake	P2-12-040-A1-	P6-12-040-A1-		
			htec® (H)	Rms<27	No Brake	P1-12-040-A4-	P5-12-040-A4-		
					Brake	P2-12-040-A4-	P6-12-040-A4-		
		AKD-X04807	htec (H)	Rms<34	No Brake	P1-13-060-A4-	P5-13-060-A4-		
					Brake	P2-13-060-A4-	P6-13-060-A4-		

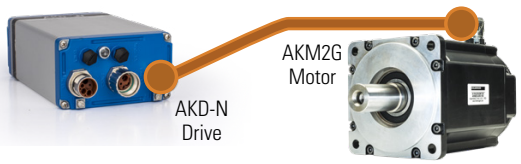
Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. To utilize full current rating of AKD-x0240x please use the htec M40 motor connector (J)
3. PUR cables have a Polyurethane cable jacket material typically used in Europe
4. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America

*Complete 2G Cable nomenclature can be found on page 34.

Kollmorgen 2G Cable Lookup Tables

AKD®-N Decentralized Servo Drive Section

Hybrid Single Cable Options



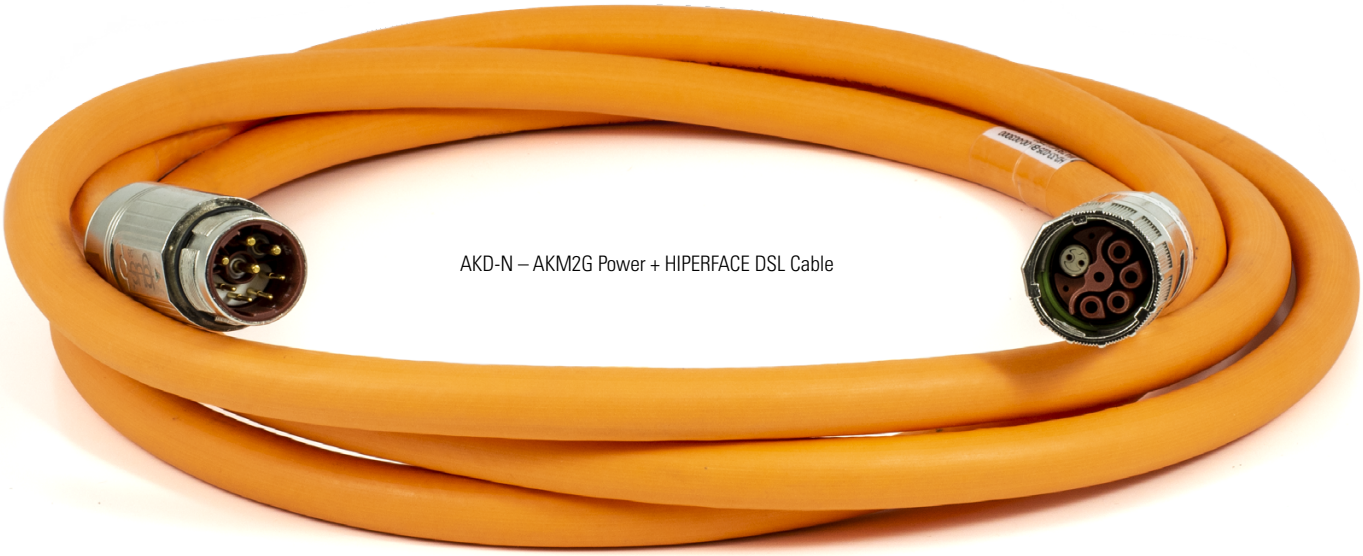
Smart Feedback Device (SFD3) – AKM®2G motor to AKD®-N drive

Drive	Motor Connector	Current Rating[1]	Hybrid (PUR)[3]	Hybrid Cable (PVC)[4]
AKD-N003 AKD-N006 AKD-N012	SpeedTec® (D)	Rms<15	H2-33-015-A1-00-XXXX00	H6-33-015-A1-00-XXXX00
		Rms<20	H2-33-025-A1-00-XXXX00	H6-33-025-A1-00-XXXX00

HIPERFACE DSL® – AKM®2G motor to AKD®-N drive

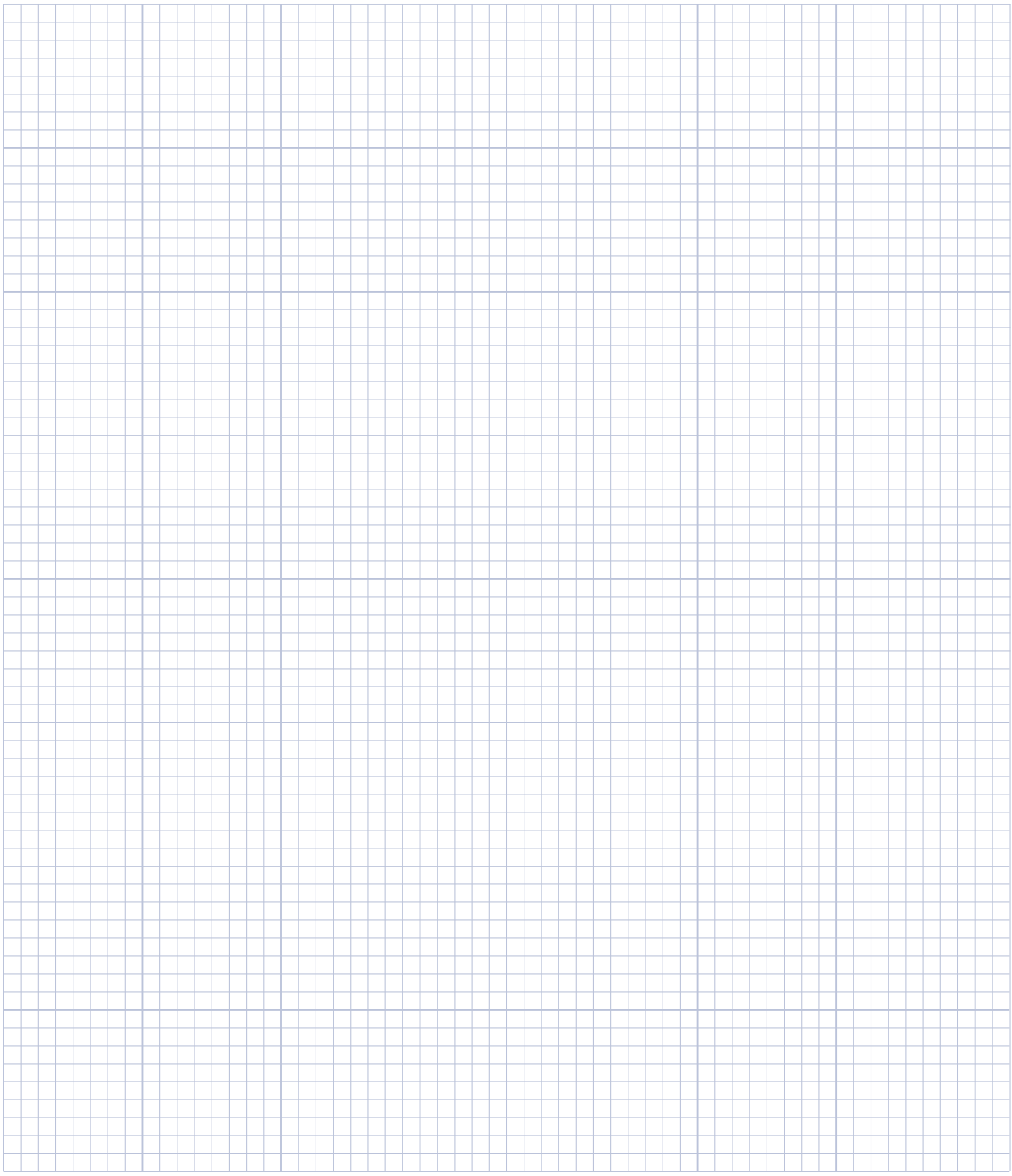
Drive	Motor Connector	Current Rating[1]	Hybrid (PUR)[3]	Hybrid Cable (PVC)[4]
AKD-N003 AKD-N006 AKD-N012	SpeedTec (D)	Rms<15	H2-33-015-B1-00-XXXX00	H6-33-015-B1-00-XXXX00
		Rms<20	H2-33-025-B1-00-XXXX00	H6-33-025-B1-00-XXXX00

Notes:
1. Current ratings used on a IEC 60364-5-52 standard
2. To utilize full current rating of AKD-x0240x please use the htec M40 motor connector (J)
3. PUR cables have a Polyurethane cable jacket material typically used in Europe
4. PVC cables have a Polyvinyl Chloride cable jacket material typically used in North America



AKD-N – AKM2G Power + HIPERFACE DSL Cable

Notes



Kollmorgen 2G Cable Physical Properties

Bend Radius and Weight Specifications

Standard Hybrid & Power Cables*

Cable Type	Main Conductor Size [mm²]	OD [mm]	Bend Radius (min.)		Weight	
			Static [mm]	Dynamic [mm]	[kg/m]	[lb/ft]
H2	1.5	13.5 (SFD/DSL)	67.5	108	0.278	0.187
		15.0 (EnDat)	75	120	0.293	0.196
	2.5	15.0	75	120	0.338	0.227
	4.0	16.5 (SFD/DSL)	82.5	132	0.450	0.302
		17.0 (EnDat)	85	136	0.427	0.286
	6.0	18.0	90	144	0.589	0.396
H6	1.5	13.5	68	108	0.294	0.198
	2.5	15.0	75	120	0.362	0.243
P1	1.5	9.5	48	76	0.156	0.105
	2.5	11.5	58	92	0.240	0.161
	4.0	12.5	63	100	0.337	0.226
	6.0	14.5	73	116	0.465	0.312
	10.0	18.0	90	144	0.747	0.502
P2	1.5	12.0	60	96	0.263	0.177
	2.5	14.0	70	112	0.306	0.206
	4.0	15.0	75	120	0.448	0.301
	6.0	16.5	83	132	0.557	0.374
	10.0	20.5	103	164	0.899	0.604
P5	1.5	10.5	42	63	0.168	0.113
	2.5	12.0	48	72	0.233	0.157
	4.0	13.5	54	81	0.345	0.232
	6.0	16.0	64	96	0.488	0.328
	10.0	20.5	82	123	0.833	0.560
P6	1.5	12.0	60	96	0.263	0.177
	2.5	13.5	68	108	0.340	0.228
	4.0	15.0	75	120	0.448	0.301
	6.0	16.5	83	132	0.557	0.374

*All Hybrid/Power Cables are rated for 80°C and 1000V

Example:

For Power and Hybrid cables the table above will define the outside diameter, bend radius and weight.

H2 – 12 – 060 – A4 – 00 – XXXX00

Looking at the part number the 060 will identify the "Main Conductor Size." For this cable, 060 translates into 6.0 in the table. The H2 cable type can then be paired with the 6.0 Main conductor size to determine the static or dynamic bend radius(90mm, 144mm), and weight per meter or foot (0.589kg/m, 0.396lb/ft).

Certifications and Standards

Certifications/Standards	
CE	Oil Resistance
CEI 20-35	Flame Resistance
Lead-free	Silicone-Free
Clean room	UL/ULC
NFPA 79	

H2 – 12 – 025 – A1 – 00 – XXXX00*
H2: Cable Version; 12: Drive Connector; 025: Wire X-section; A1: Motor Mating Connector; 00: Customization; XXXX00: Length

Bend Radius, Life and Weight Specifications

Standard Feedback Cables

Cable Type	Feedback Type	OD [mm]	Bend Radius (min.)		Weight	
			Static [mm]	Dynamic [mm]	[kg/m]	[lb/ft]
F1	Resolver	7.5	30	45	0.067	0.045
	EnDat®/BiSS	10.5	42	63	0.128	0.086
	HIPERFACE®	8.5	34	51	0.083	0.056
	SFD2	7.0	28	42	0.064	0.043
	Comcoder	10.5	42	63	0.128	0.086
F5	Resolver	8.0	32	48	0.074	0.050
	EnDat/BiSS	10.5	42	63	0.141	0.095
	HIPERFACE	8.5	34	51	0.089	0.060
	SFD2	7.0	28	42	0.069	0.046
	Comcoder	10.5	42	63	0.141	0.095

Example:

For Feedback cables the table above will define the outside diameter, bend radius and weight. If the motor is using a resolver feedback and a PUR cable jacket material (F1), the OD will be 7.5mm, the static and dynamic bend radius will be 30mm and 45mm, and the weight will be 0.67kg/m or 0.45lb/ft.

Life Cycle

Lifetime at Specified Conditions

Cable Type	Cycles @ Bend Radius [F x DIA]			Vmax [m/s]		a max [m/s²]	Travel Dist. [m]	Temp from/ to [°C]
	5 million	7.5 million	10 million	Unsupported	Gliding			
H2	10	11	12	10	2	50	≤ 10	-15/+70
H6	10	11	12	10	2	50	≤ 10	+15/+60
P1	10	11	12	10	2	50	≤ 10	-15/+70
P2	10	11	12	10	2	50	≤ 10	-15/+70
P5	7.5	8.5	9.5	10	5	80	≤ 100	+15/+60
P6	10	11	12	10	2	50	≤ 10	+15/+60
F1	7.5	8.5	9.5	5	3	50	≤ 100	-15/+70
F5	7.5	8.5	9.5	5	3	50	≤ 100	+15/+60

Example:

If life cycle of a cable needs to be determined, the table above will be of assistance. If for example, an H2-12-060-A4-00-001000 cable will be making 7.5 million cycles at the bend radius. From the tables above the cable diameter can be found as, 18 mm. 18 mm will then be multiplied by a factor of 11, to determine the bend radius to ensure 7.5 million cycles.

*Complete 2G Cable nomenclature can be found on page 34.

AKM® Family Motor Connector Options

AKM®2G Servo Motors

Feedback Unit Options

Code	Description	Connector Type	Compatible AKM2Gx	Size	Motor ID Support[3]	Accuracy[1,2] (arc-sec)	RMS Noise[1] (arc-sec)	Resolution	Absolute revs.	Compatible Drives
CA	SFD3	D	AKM2G2-4	15	Yes	±585"	±9.9"	24 bits	1	AKD/AKD2G
		D	AKM2G5-7 > 20A	21						
		J	AKM2G7 > 20A	21						
GU	HIPERFACE DSL®	D	AKM2G2-7 ≤ 20A	EEM37	Yes	±240"	±20"	17 bits	4096	AKD/AKD2G
		J	AKM2G7 > 20A							
LD	EnDat® 2.2	D	AKM2G2-4	EQI 1131	Yes	±120"	See Note 4	19 bits	4096	AKD/AKD2G
		H	AKM2G7 ≤ 20A	EQI 1331		±65"				
R-	Resolver	Y	AKM2G2	15	No	±540"	N/A	24 bits for AKD/AKD2G	1	All
		C/G	AKM2G3-4							
		C/G	AKM2G5-7 ≤ 20A	21						
		H	AKM2G7 > 20A							

Note 1: AKD/AKD2G drives have a resolver measurement accuracy of ±45", for a drive w/ motor accuracy of ±585" and RMS Noise of ±9.9".
Note 2: Accuracy refers to overall system accuracy once installed in the motor. Noise refers to the RMS position noise when at stand-still.
Note 3: Motor ID support means electronic motor nameplate data is included, allowing for plug-and-play commissioning.
Note 4: At the time of printing, this information was not available. Please contact Kollmorgen Customer Support for the latest update.
With AKD and AKD2G drives, all received positions are interpolated to a 32-bit resolution per revolution.

Connector Options

Model Designation	Connection	Compatible AKM2Gx	Position of connection
C	2 SpeedTec® M23	AKM2G3 - AKM2G7 ≤ 20 Amps	Angular, rotatable, motor mounted
D*	1 htec® M23	AKM2G2 - AKM2G7 ≤ 20 Amps	Angular, rotatable, motor mounted
G	2 SpeedTec® M23	AKM2G3 - AKM2G7 ≤ 20 Amps	Straight, motor mounted
H	1 M40 Power, 1 M23 Feedback	AKM2G7 > 20 Amps	Angular, rotatable, motor mounted
J*	1 htec® Connector M40	AKM2G7 > 20 Amps	Angular, rotatable, motor mounted
Y	1 ytec® Connector	AKM2G2	Rotatable, motor mounted

* Hybrid connectors valid for SFD3, DSL, and EnDat Feedback only.

Connector Description

Connector	Usage	Contacts - Pins Power/Signal	Max. Current [A] Power/Signal	Max. Cross Section [mm²] Power/Signal	Protection Class
M23 SpeedTec® right angle connectors (Size 1)	Power & Brake	4 / 5	20 / 10	4 / 1.5	IP65
	Resolver	- / 12	- / 10	- / 0.5	IP65
	DSL	5 / 2 / 2	20 / 10	4 / 1.5	IP65
	SFD3	4 / 5	20 / 10	4 / 1.5	IP65
	EnDat	5 / 4 / 6	20 / 10	4 / 1.5	IP65
M40 (Size 1.5)	Power & Brake	4 / 5	75 / 30	16 / 4	IP65
	SFD3	4 / 5	75 / 30	16 / 4	IP65
	DSL	5 / 4 / 2	75 / 30	16 / 4	IP65
ytec®	Power & Brake	4 / 5	14 / 3.6	1.5 / 0.75	IP65
	Resolver	- / 12	- / 5	- / 0.75	IP65

Feedback Unit Options

Code	Designation	Model	Can be used with	Connection Option	Comment
1-	Comcoder		AKM1 - AKM8	1, 2, 7, B, C, G, H, T	1024 incr./rev
2-	Comcoder		AKM1 -AKM8	1, 2, 7, B, C, G, H, T	2048 incr./rev
AA	BiSS B encoder	AD36	AKM2 - AKM4	1, 7, B, C, M	Single-turn, optical
AA	BiSS B encoder	AD58	AKM5 - AKM8	1, 2, C, G, H, M, T	Single-turn, optical
AB	BiSS B encoder	AD36	AKM2 - AKM4	1,7,B, C, M	Multi-turn, optical
AB	BiSS B encoder	AD58	AKM5 - AKM8	1, 2, C, G, H, M, T	Multi-turn, optical
C-	Smart Feedback Device SFD	Size 10	AKM1	1, D, Y, M, P	Single-turn 4-wire
C-	Smart Feedback Device SFD	Size 15	AKM2 - AKM4	1, D, Y, M, P	Single-turn 4-wire
C-	Smart Feedback Device SFD	Size 21	AKM5- AKM8	1, D, Y, M, P	Single-turn 4-wire
CA	Smart Feedback Device SFD3		AKM1 - AKM6	D	Single-turn 2-wire
DA	EnDAT® 2.1 encoder	ECN 1113	AKM2 - AKM4	1, 7, B, C, M	Single-turn. optical
DA	EnDAT 2.1 encoder	ECN 1313	AKM5 - AKM8	1, 2, C, G, H, M, T	Single-turn, optical
DB	EnDAT 2.1 encoder	EQN 1125	AKM2 - AKM4	1, 7, B, C, M	Multi-turn, optical
DB	EnDAT 2.1 encoder	EQN 1325	AKM5 - AKM8	1, 2, C, G, H, M, T	Multi-turn, optical
EF	Comcoder		AKM2 - AKM8	B,C,G,H,M,T	2000 incr./rev
EG	Comcoder		AKM2 - AKM8	B,C,G,H,M,T	2500 incr./rev
EH	Comcoder		AKM2 - AKM8	B,C,G,H,M,T	5000 incr./rev
EJ	Comcoder		AKM3 - AKM8	B,C,G,H,M,T	10,000 incr./rev
EM	Comcoder		AKM2 - AKM8	B,C,G,H,M,T	4096 incr./rev
EN	Comcoder		AKM3 - AKM8	B,C,G,H,M,T	8192 incr./rev
LA	EnDAT 2.1 encoder	ECI 1118	AKM2 - AKM3	1, 7, B , C, M	Single-turn, inductive
LA	EnDAT 2.1 encoder	ECI 1319	AKM4 - AKM8	1, 2, C, G, H, M, T	Single-turn, inductive
LB	EnDAT 2.1 encoder	ECI 1130	AKM2 - AKM3	1,7, B, C, M	Multi-turn, inductive
LB	EnDAT 2.1 encoder	ECI 1331	AKM4 - AKM8	1, 2, C, G, H, M, T	Multi-turn, inductive
GA	HIPERFACE® encoder	SKS36	AKM2 - AKM8	B,C,G	Single-turn, optical
GB	HIPERFACE encoder	SKS36	AKM2 - AKM8	B,C,G	Multi-turn, optical
GJ	HIPERFACE encoder	SKS36	AKM2 - AKM8	1,2,7, B, C, G, H, M, T	Single-turn, optical
GK	HIPERFACE encoder	SKM36	AKM2 - AKM8	1,2,7, B, C, G, H, M, T	Multi-turn, optical
GP	HIPERFACE encoder	SEK34	AKM1	1, Y, M	Single-turn, capacitive
GR	HIPERFACE encoder	SEL34	AKM1	1, Y, M	Multi-turn, capacitive
GE	HIPERFACE DSL® encoder	EKS36	AKM2 - AKM8	D	Single-turn, optical
GF	HIPERFACE DSL encoder	EKM36	AKM2 - AKM8	D	Multi-turn, optical
GM	Safety HIPERFACE	SKS36S	AKM2 - AKM8	1, 2, 7, B, C, G, H, M, T	Single-turn, optical
GN	Safety HIPERFACE	SKM36S	AKM2 - AKM8	1, 2, 7, B, C, G, H, M, T	Multi-turn, optical
MA	Drive Cliq	ECN1324S	AKM4 - AKM8		Single-turn, optical
MB	Drive Cliq	EQN1336S	AKM4 - AKM8	tba	Multi-turn, optical
R-	Resolvers	Size 10	AKM1	1,2,7, B, C, G, H, M, T, Y	2-pin, hollow shaft
R-	Resolvers	Size 15	AKM2 - AKM4	1,2,7, B, C, G, H, M, T, Y	2-pin, hollow shaft
R-	Resolvers	Size 21	AKM5 - AKM8	1,2,7, B, C, G, H, M, T, Y	2-pin, hollow shaft

* not available for AKM2 with connection option C (cable with IP65 connector)

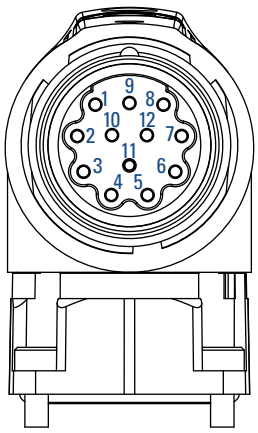
Connector Options

Code		Can be used with	Protection class	Connection type	Description
With PTC	With KTY 84-130				
B	1	AKM2	IP65	2 threaded connectors, size 1.0	Angled, rotatable, mounted on motor
C	7	AKM1 - AKM2	IP65	2 threaded connectors, size 1.0	On 0.5 m cable
C	1	AKM3	IP65	2 threaded connectors, size 1.0	Angled, rotatable, mounted on motor
C	1	AKM4 - AKM7	IP65	2 SpeedTec® Ready connectors, size 1.0	Angled, rotatable, mounted on motor
–	D	AKM1	IP65	1 hybrid itec® connector	Mounted on motor
–	D	AKM2 - AKM6	IP65	1 hybrid threaded connector, size 1.0	Angled, rotatable, mounted on motor
G	–	AKM2 - AKM3	IP67	2 threaded connectors, size 1.0	Straight, mounted on motor
G	–	AKM4 - AKM6	IP67	2 SpeedTec Ready connectors, size 1.0	Straight, mounted on motor
H	1	AKM74Q and AKM82T	IP65	1 feedback threaded connector, size 1.0 1 power threaded connector, size 1.5	Angled, rotatable, mounted on motor
M	–	AKM1 - AKM4	IP20	2 Molex connectors, $I_0 < 6$ A	On 0.5 m cable
P	–	AKM1 - AKM4	IP20	1 Molex connector, $I_0 < 6$ A	On 0.5 m cable
R	–	AKM4 - AKM7	IP65	1 feedback threaded connector M12 1 power connector SpeedTec-Ready M23	Straight, mounted on motor Angled, mounted on motor
T	2	AKM8	IP65	1 terminal box IP65 for power 1 Feedback threaded connector, size 1.0	Mounted on motor
Y	1	AKM1	IP65	1 ytec® connector	Mounted on motor

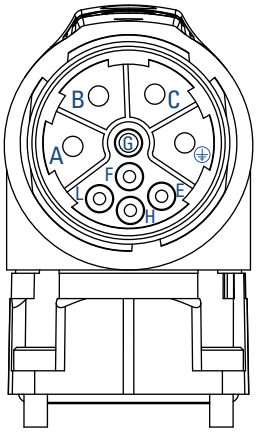
AKM2G Servo Motor Connector Pinouts

C & G Dual Connector Pinouts – AKM2G size 3 to size 7 < 20 Amps Continuous resolver only

C- Dual Connector Option



Resolver Connector

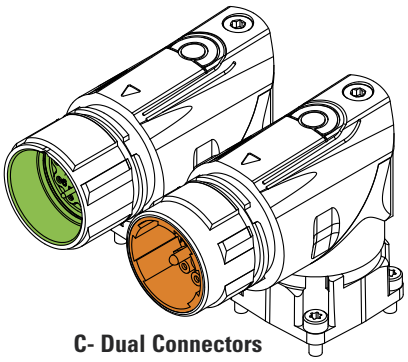


Power Connector

Resolver Connector

Pin	Function
1	N/C
2	Thermal Sensor +
3	S4, COS-
4	S3, SIN-
5	R2, REF-
6	Thermal Sensor –
7	S2, COS+
8	S1, SIN+
9	R1, REF+
10	N/C
11	N/C
12	N/C

Shield is Not Connected at Motor End
On motor mounted connectors, the thermal sensor lead colors are (+) Blue, (–) Black.



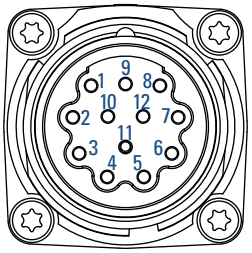
C- Dual Connectors

Power Connector

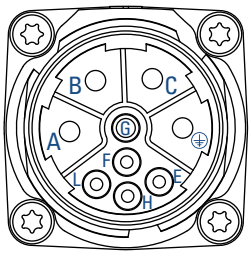
Pin	Function
A	U
⏚	PE
C	W
B	V
F	Brake +
G	Brake -
E	N/C
H	N/C
L	N/C

Shield Connected to Motor
Ground Internal to Motor

G- Dual Connector Option



Resolver Connector

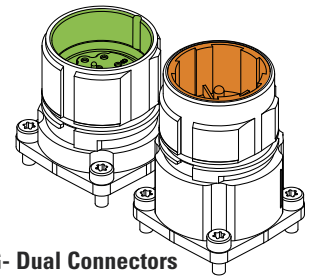


Power Connector

Resolver Connector

Pin	Function
1	N/C
2	Thermal Sensor +
3	S4, COS-
4	S3, SIN-
5	R2, REF-
6	Thermal Sensor –
7	S2, COS+
8	S1, SIN+
9	R1, REF+
10	N/C
11	N/C
12	N/C

Shield is Not Connected at Motor End
On motor mounted connectors, the thermal sensor lead colors are (+) Blue, (–) Black.



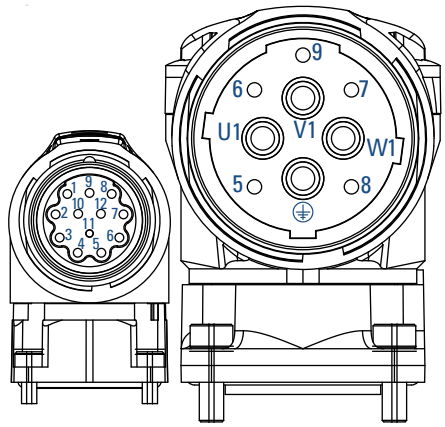
G- Dual Connectors

Power Connector

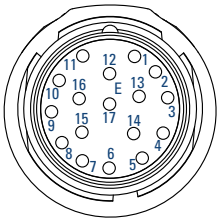
Pin	Function
A	U
⏚	PE
C	W
B	V
F	Brake +
G	Brake -
E	N/C
H	N/C
L	N/C

Shield Connected to Motor
Ground Internal to Motor

H- Dual Connector Pinout – AKM2G7 > 20 Amps Continuous resolver motors



Resolver Connector Power Connector



EnDat® Connector

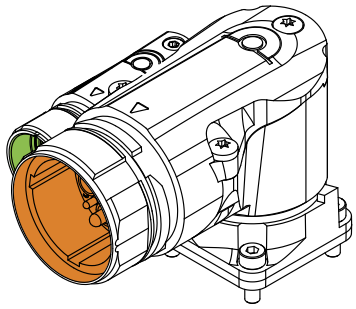
EnDat

Pin	Function
1	B –
2	PE
3	A –
4	Vcc 5 Vdc
5	DATA
6	N/C
7	Thermal Sensor +
8	Clock
9	B +
10	Un Sense (Common)
11	A +
12	Up Sense (VCC)
13	$\overline{\text{DATA}}$
14	Thermal Sensor –
15	$\overline{\text{Clock}}$
16	N/C
17	N/C

Resolver

Pin	Function
1	N/C
2	Thermal Sensor +
3	S4, COS-
4	S3, SIN-
5	R2, REF-
6	Thermal Sensor –
7	S2, COS+
8	S1, SIN+
9	R1, REF+
10	N/C
11	N/C
12	N/C

Shield is Not Connected at Motor End
On motor mounted connectors, the thermal sensor lead colors are (+) Blue, (–) Black.



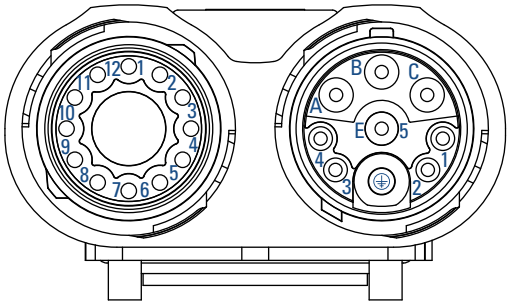
H- Dual Connectors

Power Connector

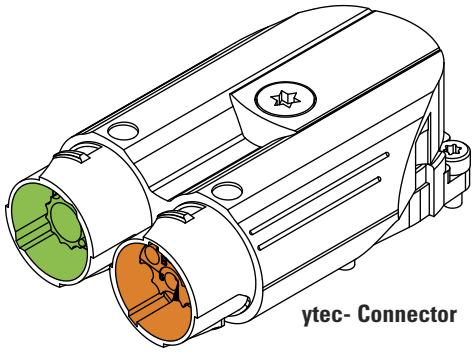
Pin	Function
U1	U
V1	V
W1	W
⏚	PE
5	Brake +
6	N/C
7	N/C
8	Brake –
9	N/C

Shield Connected to Motor Ground Internal to Motor

ytec®- Connector Pinout – AKM2G2 only



Resolver Power + Brake



ytec- Connector

Resolver Connector

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

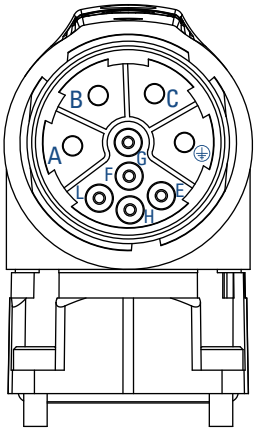
Power Connector

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	G	PE

AKM2G Servo Motor Connector Pinouts

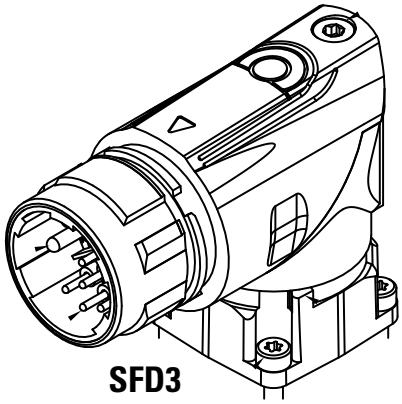
D- Connector Pinouts – Hybrid combined power and feedback for SFD3, DSL, and EnDat for size 7 < 20 Amps Continuous

D- Dual Power + SFD3 Connector Option

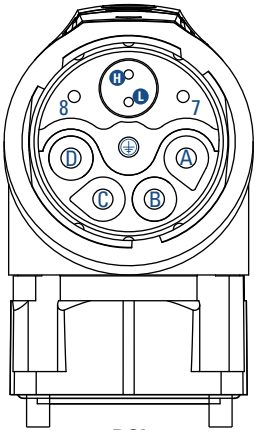


Power + SFD3

Pin	Function
A	Phase U
B	Phase V
C	Phase W
⏚	PE
E	N/C
F	Brake +
G	Brake –
H	SFD +
L	SFD –

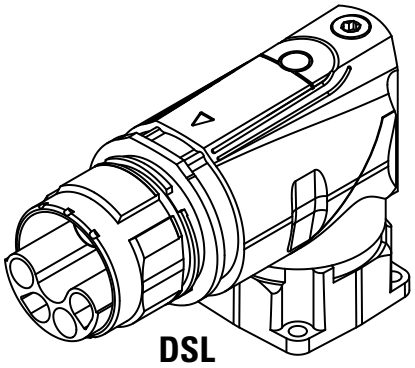


D- Dual Power + HIPERFACE DSL® Connector Option

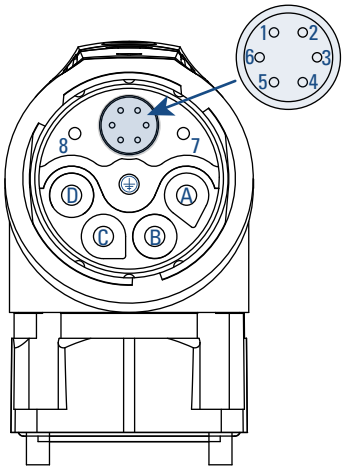


Power + DSL

Pin	Function
A	Phase U
B	Phase V
C	Phase W
D	N/C
⏚	PE
8	Brake +
7	Brake -
L	DSL -
H	DSL +

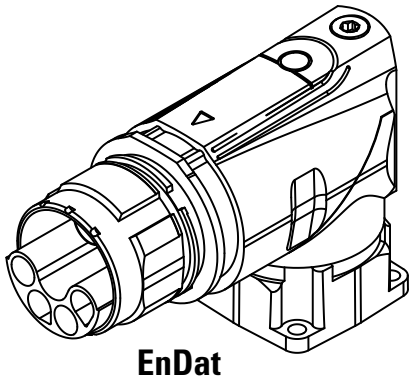


D- Dual Power + EnDat® Connector Option



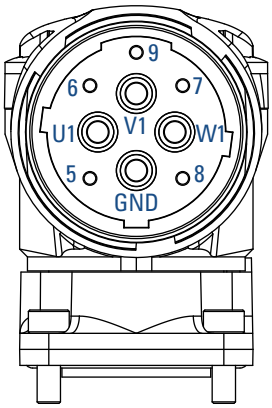
Power + EnDat

	Pin	Function
	A	Phase U
	B	Phase V
	C	Phase W
	D	N/C
	⏚	PE
	8	Brake +
	7	Brake -
Ethernet	1	Up
Ethernet	2	0 V
Ethernet	3	Data
Ethernet	4	Data
Ethernet	5	Clock
Ethernet	6	Clock



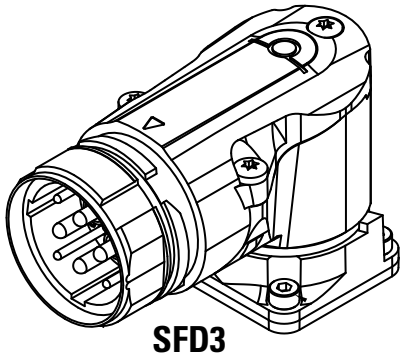
J- Connector Pinouts – Hybrid combined power and feedback for SFD3 and DSL for size 7 > 20 Amps Continuous

J- Dual Power + SFD3 Connector Option

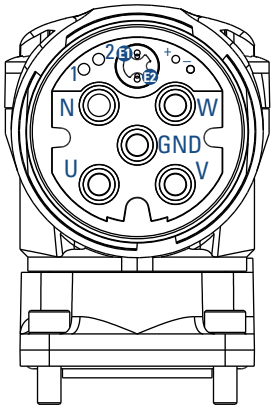


Power + SFD3

Pin	Function
U1	Phase U
W1	Phase W
V1	Phase V
GND	PE
5	Brake +
6	SFD +
7	SFD –
8	Brake –
9	N/C

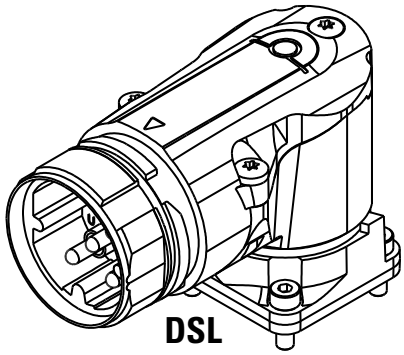


J- Dual Power + HIPERFACE DSL® Connector Option



Power + DSL

Pin	Function
U	Phase U
W	Phase W
V	Phase V
N	N/C
GND	PE
1	Brake +
2	Brake -
+	N/C
-	N/C
E2	DSL -
E1	DSL +

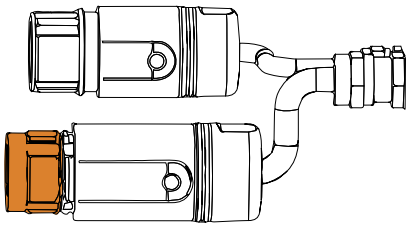


J- Power + HIPERFACE DSL Connector

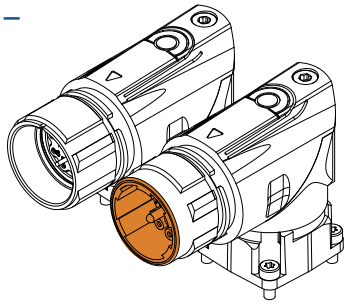
AKM Servo Motor Connector Pinouts

Kollmorgen 2G Dual Cable Options – Power & Feedback

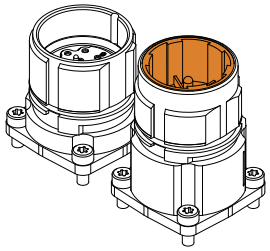
B, C, G, H, & T Power Connector Pinouts –



B- Connectors (AKM1 & AKM2 Only)

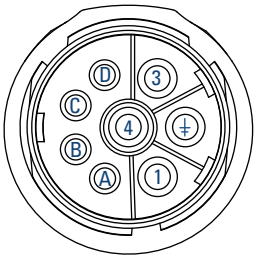


C- Connectors (AKM3 - AKM7)



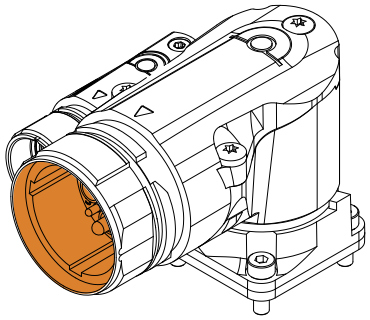
G- Connectors (AKM3 - AKM7)

B-, C- & G- Power Connector Pinout



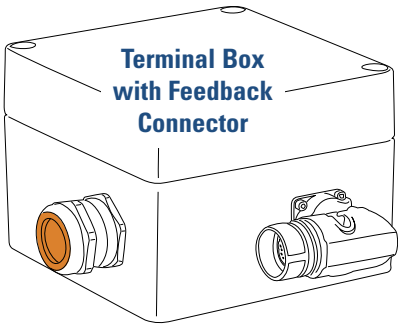
Pin	Function
1	U
‡	PE
3	W
4	V
A	Brake +
B	Brake -
C	N/C
D	N/C

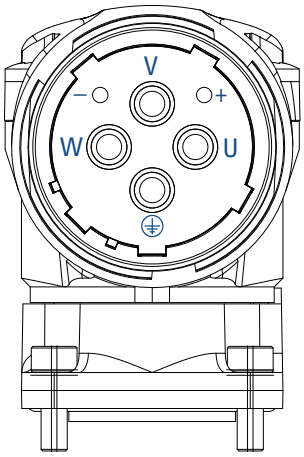
H- Connector Pinout
(AKM7 & AKM8 Only)



H- Connectors

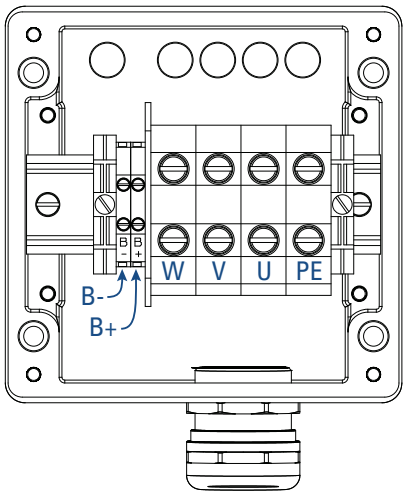
T- Connector
(AKM8 Only)





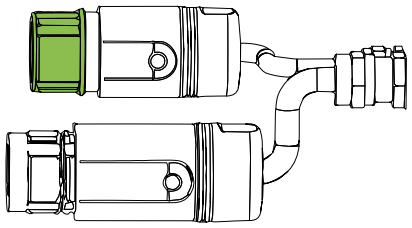
Pin	Function
U	U
‡	PE
W	W
W	V
+	Brake +
-	Brake -

Power Connector (View Facing Front)

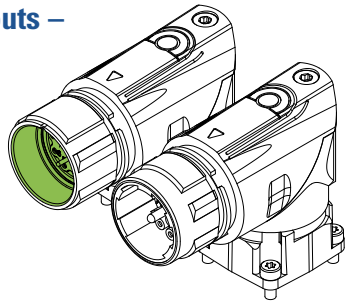


Clamp	Function
U	U
PE	PE
W	W
V	V
B+	Brake +
B-	Brake -

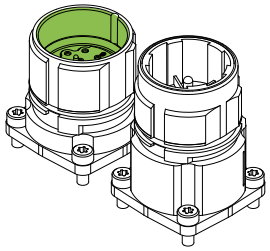
B, C, G, H, & T Feedback Connector Pinouts –



B- Connectors (AKM1 & AKM2 Only)



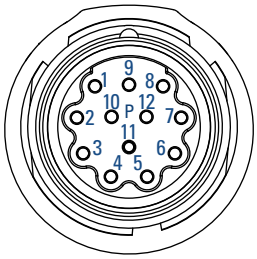
C- Connectors (AKM3 - AKM7)



G- Connectors (AKM3 - AKM7)

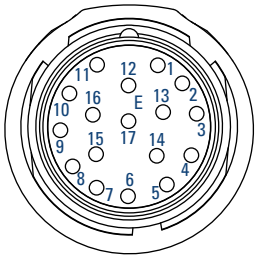
SFD2 Feedback

Pin	Function
1	SFD +5V
2	SFD +5V RTN
3	SFD COM-
4	SFD COM+
5	SFD COM Shield (AKM 1, 2)
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	N/C



Resolver Feedback

Pin	Function
1	N/C
2	Thermal Sensor +
3	S4 COS –
4	S3 SIN –
5	R2 REF –
6	Thermal Sensor –
7	S2 COS +
8	S1 SIN +
9	R1 REF +
10	N/C
11	N/C
12	N/C



Commutating Encoder Feedback

Pin	Function
1	B
2	$\overline{B}$
3	A
4	$\overline{A}$
5	Z
6	$\overline{Z}$
7	GND
8	Thermal Sensor +
9	Thermal Sensor –
10	Vcc
11	N/C
12	N/C
13	N/C
14	N/C
15	U
16	V
17	W

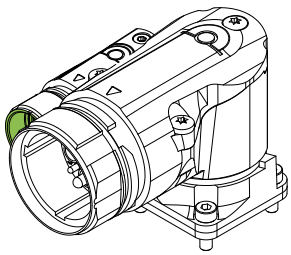
EnDat®/BiSS Feedback

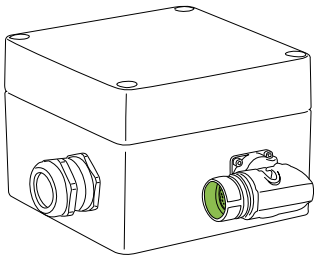
Pin	Function
1	B –
2	GND
3	A –
4	Vcc
5	DATA
6	N/C
7	Thermal Sensor +
8	Clock
9	B +
10	Un Sense (Common)
11	A +
12	Up Sense (VCC)
13	$\overline{DATA}$
14	Thermal Sensor –
15	$\overline{Clock}$
16	N/C
17	N/C

HIPERFACE®Analog Feedback

Pin	Function
1	SIN +
2	GND
3	COS +
4	Vcc
5	Data
6	N/C
7	Thermal Sensor +
8	N/C
9	REF SIN
10	N/C
11	REF COS
12	N/C
13	$\overline{Data}$
14	Thermal Sensor –
15	N/C
16	N/C
17	N/C

H- Connectors
(AKM7 - AKM8 Only)



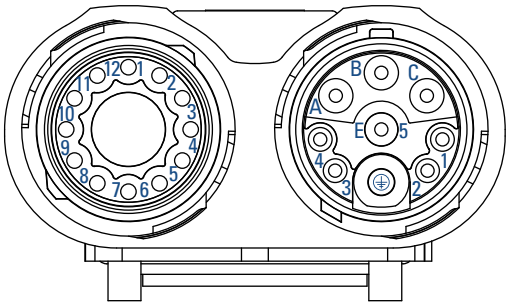


T- Connector
(AKM7 - AKM8 Only)

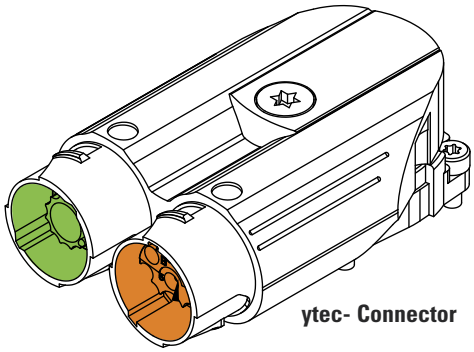
AKM Servo Motor Connector Pinouts

Kollmorgen 2G Dual Cable Options – Power & Feedback

ytec®- Connector Pinout – AKM1 only



Feedback Power + Brake



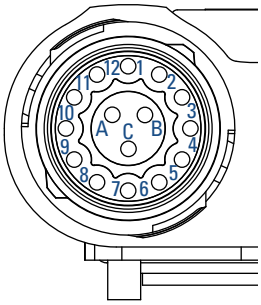
ytec- Connector

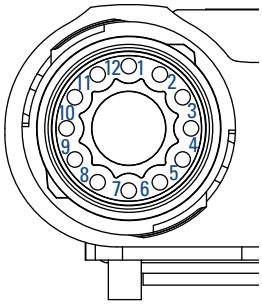
Power Connector

Pin	Function
1	BR+
2	BR-
3	N/C
4	N/C
5/E	N/C
A	Phase U
B	Phase W
C	Phase V
⏚	PE

Commutating Encoder Feedback

Pin	Function
1	B
2	$\overline{B}$
3	A
4	$\overline{A}$
5	Z
6	$\overline{Z}$
7	GND
8	Thermal Sensor +
9	Thermal Sensor –
10	Vcc
11	N/C
12	N/C
A	U
B	V
C	W





SFD2 Feedback

Pin	Function
1	SFD +5 V
2	SFD +5 V RTN
3	SFD COM-
4	SFD COM+
5	N/C
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	N/C

Resolver Feedback

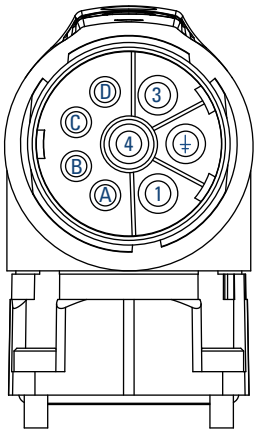
Pin	Function
1	N/C
2	Thermal Sensor +
3	S4 COS –
4	S3 SIN –
5	R2 REF –
6	Thermal Sensor –
7	S2 COS +
8	S1 SIN +
9	R1 REF +
10	N/C
11	N/C
12	N/C

HIPERFACE® Analog Feedback

Pin	Function
1	Thermal Sensor +
2	Thermal Sensor –
3	N/C
4	REF SIN
5	REF COS
6	Data +
7	Data –
8	SIN +
9	COS +
10	Vcc
11	GND
12	N/C

Kollmorgen 2G Hybrid Single Cable Options – Power & Feedback

D- Connector Pinouts – Hybrid combined power and SFD3 / DSL feedback cable



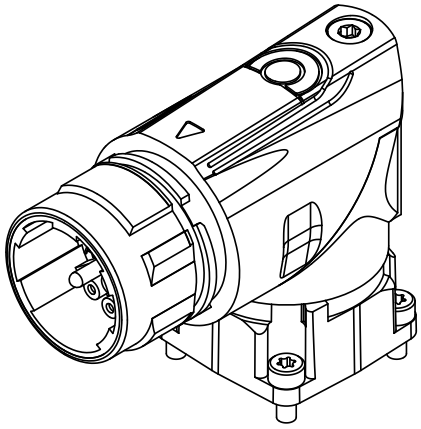
Power + SFD2 /SFD3 / DSL

Power + SFD3 / DSL

Pin	Function
1	U
⏚	PE
3	W
4	V
A	Brake +
B	Brake –
C	SFD – / DSL –
D	SFD + / DSL +

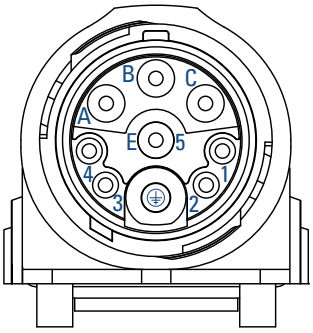
Power + SFD2

Pin	Function
1	U
⏚	PE
3	W
4	V
A	SFD +5 V
B	SFD +5 V RTN
C	SFD COM –
D	SFD COM +



D- Connector

itec®- Connector Pinout – AKM1 only



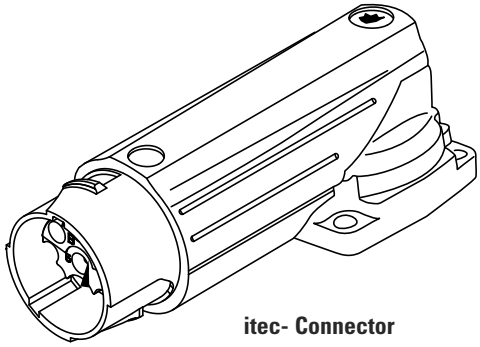
Power + SFD3

Power + SFD3

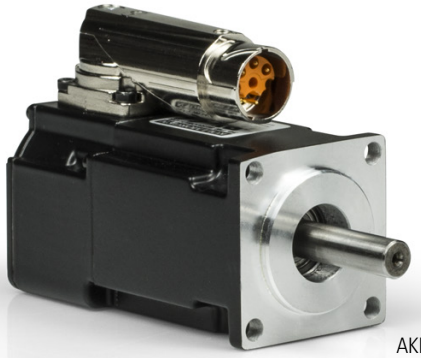
Pin	Function
1	Brake +
2	Brake –
3	SFD –
4	SFD +
5/E	N/C
A	Phase U
B	Phase W
C	Phase V
⏚	PE

Power + SFD2

Pin	Function
1	SFD +5 V
2	SFD +5 V RTN
3	SFD COM –
4	SFD COM+
5/E	N/C
A	Phase U
B	Phase W
C	Phase V
⏚	PE



itec- Connector



AKM1 with itec Connector

Kollmorgen 2G Cable Mating Connectors

AKM®2G Mating Connectors

AKM2G – 2G Hybrid Power+Feedback Cable Mating Connectors[1]

Connector Option Code	Feedback Option	Continuous Current	Cable Power Conductor Size [mm²]	Mating Connector[2]
D	CA	≤ 20 A	1.5	BSTA-082-FR-46-58-0100-000
			2.5	BSTA-082-FR-46-58-0100-000
			4.0	BSTA-082-FR-32-59-0100-000
D	GF, GU	≤ 20 A	1.5	H51A-425-FR-14-58-0100-000 + 40.A711.00
			2.5	H51A-425-FR-14-58-0100-000 + 40.A711.00
			4.0	H51A-425-FR-15-59-0100-000 + 40.A711.00
D	LD	≤ 20 A	1.5	H51A-405-FR-14-59-0100-000 + 40.A702.00
			4.0	H51A-405-FR-15-59-0100-000 + 40.A702.00
J	CA	> 20 A	4.0	CSTA-265-FR-06-26-0020-000
			6.0	CSTA-265-FR-06-25-0020-000
			10.0	CSTA-265-FR-06-25-0020-000
J	GF, GU	> 20 A	4.0	H81A-501-FR-03-44-0100-000 + 40.A711.00
			6.0	H81A-501-FR-03-45-0100-000 + 40.A711.00

Notes:
1. Based on Kollmorgen cable constructions and sizes
2. Mating connector from TE Connectivity

AKM2G – 2G Power Cable Mating Connectors[1]

Connector Option Code	Continuous Current	Cable Power Conductor Size [mm²]	Mating Connector[2]
C,G	≤ 20A	1.5	BSTA-082-FR-46-58-0100-000
		2.5	BSTA-082-FR-46-58-0100-000
		4.0	BSTA-082-FR-32-59-0100-000
H	> 20 A	4.0	CSTA-265-FR-06-26-0020-000
		6.0	CSTA-265-FR-06-25-0020-000
		10.0	CSTA-265-FR-06-25-0020-000
Y	≤ 15 A	1.5	ESTB-202-FR-05-33-0500-000

Notes:
1. Based on Kollmorgen cable constructions and sizes
2. Mating connector from TE Connectivity

AKM2G – 2G Feedback Cable Mating Connectors

	Cable Composition	Connector Option Code
C, G, H	Resolver	ASTA-013-FR-01-62-0100-000
	EnDat®	ASTA-014-FR-01-61-0100-000
Y	Resolver	ESTB-002-FR-02-32-0001-000

AKM® Mating Connectors

AKM – 2G Hybrid Power+Feedback Cable Mating Connectors[1]

Connector Option Code	Feedback Option	Continuous Current	Cable Power Conductor Size [mm²]	Mating Connector[2]
D	CA (SFD3) GF (DSL Multi-turn) GE (DSL Single-turn)	≤ 20 A	1.5	BSTA-078-FR-26-58-0100-000
			2.5	
			4.0	BSTA-078-FR-26-59-0100-000
D (itec)[3]	CA (SFD3)	≤ 10 A	1.0	ESTB-202-FR-05-33-0500-000

Notes:
1. Based on Kollmorgen cable constructions and sizes
2. Mating connector from TE Connectivity
3. Only available for AKM1X options

AKM – 2G Power Cable Mating Connectors[1]

Connector Option Code	Continuous Current	Cable Power Conductor Size [mm²]	Mating Connector[2]
B,C,G	≤ 20 A	1.5	BSTA-078-FR-26-58-0100-000
		2.5	
		4.0	BSTA-078-FR-26-59-0100-000
H	> 20 A	4.0	CSTA-263-FR-52-26-0020-000
		6.0	CSTA-263-FR-52-25-0020-000
		10.0	
Y	< 15 A	1.5	ESTB-202-FR-05-33-0500-000

Notes:
1. Based on Kollmorgen cable constructions and sizes
2. Mating connector from TE Connectivity

AKM – 2G Feedback Cable Mating Connectors

Connector Option Code	Cable Composition	Connector Option Code
B,C,G,H,T	Resolver	ASTA-013-FR-01-62-0100-000
	SFD2	
	HIPERFACE®	ASTA-014-FR-01-61-0100-000
	EnDat®/BiSS	
	Comcoder	
Y	SFD2	ESTB-002-FR-02-32-0001-000
	Resolver	
	HIPERFACE®	
	Comcoder	ESTB-205-FR-08-33-0003-000

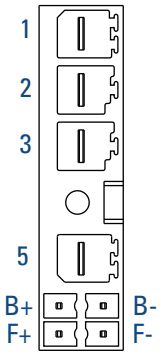
Servo Drive Connector Pinouts

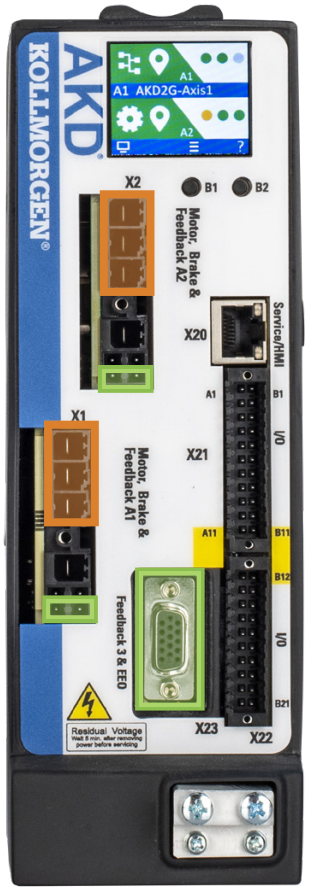
AKD®2G Servo Drive Connector Power and Feedback Pinouts

AKD®2G Motor Power Connector (X1/X2)

X1 and X2: Motor, Power + Brake and Feedback

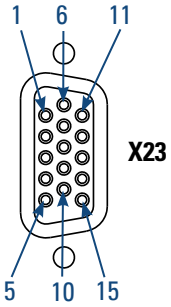
Pin	Signal	Description
1	U	Motor Phase U
2	V	Motor Phase V
3	W	Motor Phase W
Retention Latch, Shield Screw		
5	PE	Protective Earth
B+	BR+	Motor Holding Brake +
B-	BR-	Motor Holding Brake –
F+	COM+	SDF3+ or HIPERFACE DSL® +
F-	COM-	SFD3- or HIPERFACE DSL –





Optional AKD®2G Motor Feedback Connector (X23)

Note: X23 is optional and not present on a standard drive.



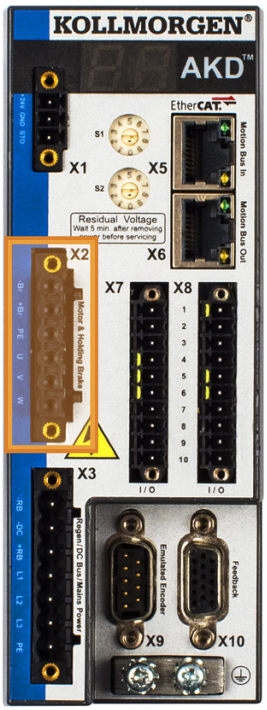
Feedback 3 Connectivity (input)

Pin	SFD	Resolver	BiSS B	BiSS C	EnDat® 2.1	EnDat® 2.2*	HIPERFACE®	Sine/ Cos	Sine/Cos +Hall	Incr. Enc.	Incr. Enc. +Hall	Hall	Smart Abs	Step/ Dir	CW/ CCW
1	–	–	–	–	–	–	–	–	Hall U	–	Hall U	Hall U	–	–	–
2	–	–	CLK+	CLK+	CLK+	CLK+	–	–	Hall V	–	Hall V	Hall V	–	–	–
3	–	–	CLK-	CLK-	CLK-	CLK-	–	–	Hall W	–	Hall W	Hall W	–	–	–
4	SEN+	–	SEN+	SEN+	SEN+	SEN+	▮	SEN+	SEN+	SEN+	SEN+	–	SEN+	–	–
5	SEN-	–	SEN-	SEN-	SEN-	SEN-		SEN-	SEN-	SEN-	SEN-	–	SEN-	–	–
6	COM+	R1 Ref+	DAT+	DAT+	DAT+	DAT+	DAT+	Zero+	Zero+	Zero+	Zero+	–	SD+	–	–
7	COM-	R2 Ref-	DAT-	DAT-	DAT-	DAT-	DAT-	Zero-	Zero-	Zero-	Zero-	–	SD-	–	–
8	–	Thermal control (+)												–	–
9	–	Thermal control (-)												–	–
10	+5 V	–	+5 V	+5 V	+5 V	+5 V	8-9 V	+5 V	+5 V	+5 V	+5 V	+5 V	+5 V	+5 V	+5 V
11	0 V	–	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V
12	–	S1 SIN+	A+	–	A+	–	SIN+	A+	A+	A+	A+	–	–	Stp+	CW+
13	–	S3 SIN-	A-	–	A-	–	SIN-	A-	A-	A-	A-	–	–	Stp-	CW-
14	–	S2 COS+	B+	–	B+	–	COS+	B+	B+	B+	B+	–	–	CCW+	CCW+
15	–	S4 COS-	B-	–	B-	–	COS-	B-	B-	B-	B-	–	–	CCW-	CCW-

CLK = CLOCK, DAT = DATA, SEN = SENSE, Stp = Pulse

*For EnDat 2.2 devices that are 14V tolerant, the sense lines may be shorted together at the connector to provide 9-10V.

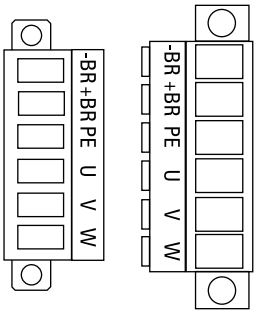
AKD® Servo Drive Connector Power Pinouts



AKD-x003 to -x024, Motor Power, Brake Connector (X2)

X2: Motor, Power + Brake

Pin	Signal	Description
1	BR-	Motor holding brake
2	BR+	Motor holding brake
3	PE	Protective Earth (motor housing)
4	U	Motor Phase U
5	V	Motor Phase V
6	W	Motor Phase W



AKD-x048, Motor Power (X2) and Brake (X15/X16) Connectors (X15, X16)

X15: Brake 24 V Supply

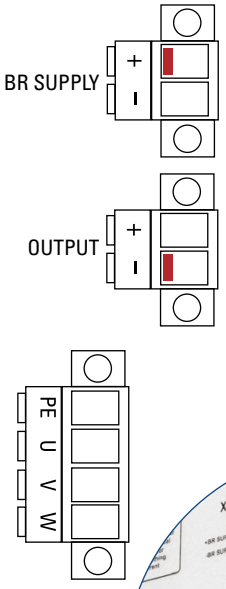
Pin	Signal	Description
1	BR SUPPLY+	Brake Supply +
2	BR SUPPLY-	Brake Supply -

X16: Motor Brake Output

Pin	Signal	Description
1	OUTPUT+	Output Brake +
2	OUTPUT -	Output Brake -

X2: Motor Power

Pin	Signal	Description
1	U	Motor Phase U
2	V	Motor Phase V
3	W	Motor Phase W
4	PE	Protective Earth (motor housing)

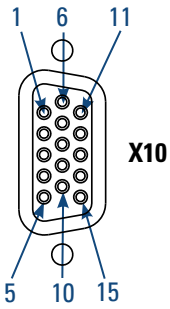


Servo Drive Connector Pinouts

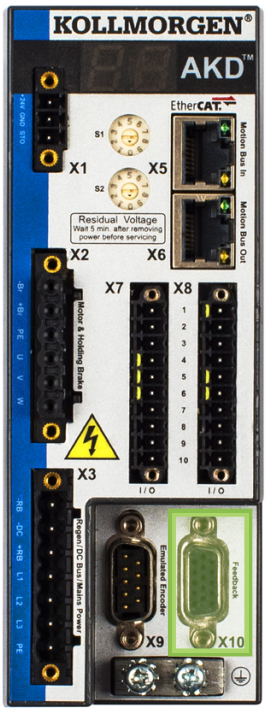
AKD® Servo Drive Connector Feedback Pinouts

AKD- Motor Feedback Connector X10

Pin	SFD	SFD3/ DSL	Resolver	BiSS B analog	BiSS C digital	EnDAT® 2.1	EnDAT® 2.2*	HIPERFACE®	Sine Enc. +Hall	Incr. Enc. +Hall	Hall	Tamagawa Smart Abs
1	–	–	–	–	–	–	–	–	Hall U	Hall U	Hall U	–
2	–	–	–	CLK+	CLK+	CLK+	CLK+	–	Hall V	Hall V	Hall V	–
3	–	–	–	CLK-	CLK-	CLK-	CLK-	–	Hall W	Hall W	Hall W	–
4	SEN+	–	–	SEN+	SEN+	SEN+	SEN+		SEN+	SEN+	–	SEN+
5	SEN-	–	–	SEN-	SEN-	SEN-	SEN-		SEN-	SEN-	–	SEN-
6	COM+	COM+	R1 Ref+	DAT+	DAT+	DAT+	DAT+	DAT+	Zero+	Zero+	–	SD+
7	COM-	COM-	R2 Ref-	DAT-	DAT-	DAT-	DAT-	DAT-	Zero-	Zero-	–	SD-
8	–	–	Thermal control (+)									
9	–	–	Thermal control (-)									
10	+5 V	8-9 V	+5 V	+5 V	+5 V	+5 V	+5 V	+8-9 V	+5 V	+5 V	+5 V	+5 V
11	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V
12	–	–	S1 SIN+	A+	–	A+	–	SIN+	A+	A+	–	–
13	–	–	S3 SIN-	A-	–	A-	–	SIN-	A-	A-	–	–
14	–	–	S2 COS+	B+	–	B+	–	COS+	B+	B+	–	–
15	–	–	S4 COS-	B-	–	B-	–	COS-	B-	B-	–	–



CLK = CLOCK, DAT = DATA, SEN = SENSE, *= for AKD with "NB" (rev 8+) only
*For EnDat 2.2 devices that are 14V tolerant, the sense lines may be shorted together at the connector to provide 9-10V.

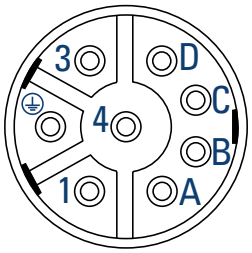


AKD®-N Servo Drive Connector Feedback Pinouts

AKD-N, Hybrid (Power + Feedback) Connector X4

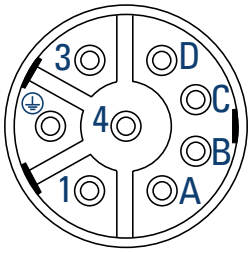
X4: Motor, Power + Brake and SFD3 / HIPERFACE DSL®

Pin	Signal	Description
A	BR+	Motor Brake +
B	BR–	Motor Brake –
C	COM–	Feedback –
D	COM+	Feedback +
1	U	Motor Phase U
2	PE	Protective Earth
3	W	Motor Phase W
4	V	Motor Phase V



X4: Motor, Power + Brake

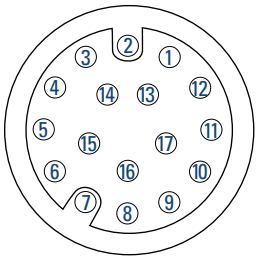
Pin	Signal	Description
A	BR+	Motor Brake +
B	BR–	Motor Brake –
C	–	Unused
D	–	Unused
1	U	Motor Phase U
2	PE	Protective Earth
3	W	Motor Phase W
4	V	Motor Phase V



AKD-N Motor Feedback Connector X5

Pin	SFD	BiSS B analog	BiSS C digital	EnDAT® 2.1	EnDAT® 2.2	HIPERFACE®	Sine Enc. +Hall	Incr. Enc. +Hall
1	–	–	–	–	–	–	Hall U	Hall U
2	–	CLK+	CLK+	CLK+	CLK+	–	Hall V	Hall V
3	–	CLK-	CLK-	CLK-	CLK-	–	Hall W	Hall W
4	–	–	–	–	–	*1	–	–
5	–	–	–	–	–	*1	–	–
6	COM+	DAT+	DAT+	DAT+	DAT+	DAT+	Zero+	Zero+
7	COM-	DAT-	DAT-	DAT-	DAT-	DAT-	Zero-	Zero-
8	–	Thermal control (+)						
9	–	Thermal control (-)						
10	+5 V	+5 V	+5 V	+5 V	8-9 V	+5 V	+5 V	+5 V
11	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V
12	–	A+	–	A+	–	SIN+	A+	A+
13	–	A-	–	A-	–	SIN-	A-	A-
14	–	B+	–	B+	–	COS+	B+	B+
15	–	B-	–	B-	–	COS-	B-	B-
16								
17								

CLK = CLOCK, DAT = DATA
BiSS Mode C interface from Reinshaw (Resolute RA26B)
HIPERFACE *1 = pins 4 and 5 externally connected
Maximum cable length is 5 m



Model Nomenclature

Kollmorgen 2G Cables

H2 – 12 – 015 – A1 – 00 – XXXX00

Cable Version

Cable Jacket Material – PUR

F2	Mid-flex Feedback Cable PUR
H2	Mid-flex Hybrid PUR with brake
P1	Power Cable PUR
P2	Power Cable PUR with brake

Cable Jacket Material – PVC

F5	MId-flex Feedback Cable PVC
H6	Mid-flex Hybrid PVC with brake
P5	Mid-flex Power Cable PVC
P6	Mid-flex Power Cable PVC with brake

Connector Type

If Feedback, connector type [connector type and pinout]

10	AKD, AKD2G, 15 Pin D-Sub, 45° angle, Resolver
12	AKD, AKD2G, 15 Pin D-Sub, 45 degree angle, EnDat® 2.1, BiSS B
14	AKD, AKD2G, 15 Pin D-sub, 45 degree angle, HIPERFACE®
18	AKD, AKD2G, 15 Pin D-sub, 45 degree angle, SFDG2
20	AKD, AKD2G, 15 Pin D-sub, 45 degree angle, Comcoder, Sine Enc. w/ Halls
41	S300/S700 Resolver 9 pin D-sub
42	S300/S700 Encoder 15 pin D-sub (EnDat® 2.2, Biss C)
43	S300/S700 Encoder 15 pin D-sub (Sine Encoder w Halls)

If Power or Hybrid drive connector type

11	AKD-x00306, -x00606 (Power and Hybrids with HDSL, SFD3)
12	AKD-x01206, -x02406 (Power and Hybrids with HDSL, SFD3) AKD-x00307, -x00607, -x01207, -x02407 (Power and Hybrids with HDSL, SFD3)
13	AKD-x04807 (Power and Hybrids with HDSL, SFD3)
14	AKD-x00306, -x00606 (Hybrids with EnDat 2.2)
15	AKD-x01206, -x02406 (Hybrids with EnDat 2.2) AKD-x00307, -x00607, -x01207, -x02407 (Hybrids with EnDat 2.2)
21	AKD2G-x00306, -x00606, -x01206 AKD2G-x00307, -x00607, -x01207, -x02406, -x02407
33	AKD-N DB (Hybrid cable)
34	AKD-N DF/DS (Power cable)
41	S300 MV (Power or Hybrid w/ SFDG3, DSL)
42	S300 HV (Power or Hybrid w/ SFDG3, DSL)
43	S300 MV (Hybrid with EnDat 2.2-22)
44	S300 HV (Hybrid with EnDat 2.2-22)
46	S701-S724 connector (Power or Hybrid w/ SFDG3, HDSL)
47	S701-S724 connector (Hybrid with EnDat 2.2-22)
48	S748/S772 flying leads
00	Unterminated (Blunt Cut)
SP	Specials

Length (no less than 100 mm increments)

xxxx00	Length in mm
	Standard lengths: 1, 3, 6, 9, 12, 25
	Example: 6 m cable = 006000
	25 m cable = 025000

Options

00	Standard Option Set

Motor Mating Connector Type

Hybrid/Power Connectors

A1	AKM2G, M23 SpeedTec® (9)
A4	AKM2G, M40 SpeedTec (9)
A5	AKM1G, M23 SpeedTec (8)
B1	AKM2G, M23 htec (9) standard keying, DSL)
B2	AKM2G, M23 htec (13) (rotated keying, EnDat 2.2)
B3	AKM2G, M40 htec (11) (standard keying, DSL)
C1	AKM/AKM2G, M15 ytec® (9)
C4	AKM, M15 itec (9) (SFD3)
W5	AKM, M23 Hummel Washdown (8)

Feedback Connectors

A2	AKM/AKM2G, M23 SpeedTec (12)
A3	AKM/AKM2G, M23 SpeedTec (17)
C2	AKM/AKM2G, M15 ytec (12)
C3	AKM/AKM2G, M15 ytec (15)
UB	Unterminated (Blunt cut)
UF	Unterminated (flying leads)

Cable Type

If Feedback, type [cable construction, not pinout]

FB1	4 Conductor
FB2	8 Conductor
FB3	6 Conductor
FB4	16 Conductor
FB5	14 Conductor
FB6	10 Conductor
FB7	12 Conductor

If Power or Hybrid drive connector type

010	1.0 mm^2
015	1.5 mm^2
025	2.5 mm^2
040	4.0 mm^2
060	6.0 mm^2
100	10.0 mm^2

AKD®2G Servo Drive

AKD2G – S P E – 7V 06 S – A 1 F3 – 0000 – A

AKD2G Series
AKD 2nd Generation

Format
S = Servo IP20

Drive Version
P = Position Indexer with motion tasks

Connectivity Options
N = Analog
E = EtherCAT®
C = CANopen

Voltage
6V = 120/240 Vac 1Ø/3Ø
7V = 240/480 Vac 3Ø

Current Rating
003 = 3 Amp
006 = 6 Amp
012 = 12 Amp

Axis Count
S = Single Axis
D = Dual Axis

Platform Revision
A = MAP Revision A

Functional Safety
1 = STO, digital I/O SIL2 PLd

Options
00 = Standard
F3 = X23 (Feedback 3)
IO = X22 (I/O)
DX = X22+X23

Customization
0000 = Standard

Connectors
A = with connectors
(except X1/X2 and X23)

Note: Options shown in blue text are considered standard.

Model Nomenclature

AKD® Servo Drive

AKD – B 003 06 – NB AN – 0000

AKD Series

Version

B = Base drive
C = Central power supply for AKD-N (Requires CB Extention)
N = Decentralized drive (Requires DB, DF, or DS Extention)
P = Position indexer (motion tasking)
T = AKD BASIC Language Programmable drive (Requires IC or NB Extention)
M = Multi-axis Master Drive (Requires M1 or MC Extension option and EC Connectivity option)

Current Rating

003 = 3 Amp
006 = 6 Amp
010 = 10kW (for AKD-C, this field refers to power.)
012 = 12 Amp
024 = 24 Amp
048 = 48 Amp

Voltage

06 = 120/240 Vac 1Ø/3Ø (24 Amp Drive: 240 Vac 3Ø only)
07 = 240/480 Vac 3Ø (Version C: 07 = 400/480 Vac 3Ø I Version N: 07 = 560/680 Vdc)

Extension

CB = Without extention (AKD-C version only)
DB = Hybrid motor cable (AKD-N version only)
DF = Additional EtherCAT® port + feedback connector (AKD-N version only)
DS = Local STO + feedback connector (AKD-N version only)
IC = Expanded I/O version and SD card slot (AKD-T version only)
M1 = High performance multi-axis controller
MC = Standard multi-axis controller
NB = Without extensions

Connectivity*

	Drive Version Availability
AN = Analog command	B, P, T
CN = CANopen®	P
EC = EtherCAT®	C, M, N, P
EI = EtherNet/IP™	P
PN - PROFINET®	P
SQ = SynqNet®	B

*Motion Tasking is included as a free upgrade with CN, EC, EI and PN

Variants

0000 = Standard

Note: Options shown in blue text are considered standard.

AKM®2G Brushless Servo Motor

AKM2G – 6 2 A – A N C N DA 0 0

AKM2G Series

Flange Size
2 58mm
3 72 mm
4 88 mm
5 114 mm
6 142 mm
7 192 mm

Rotor Length
1
2
3
4
5

Winding Type
A to Z
S Special

Mount
A IEC with accuracy N

Shaft
C Keyway
N Smooth shaft
S Special

Customization
0 Standard
T Mineral filled PTFE seal (Teflon®)
V Viton® shaft seal
x Special

Thermal Sensor
0 PT-1000 + PTC
1 PT-1000
2 PTC
3 KTY84-130 Equivalent
S Special

Feedback Device
For all options see page 18
S Special

Brake
2 24 V holding brake
N Without brake
S Special

Connections
For all options see page 18
S Special

Note: Options shown in blue text are considered standard.

Model Nomenclature

AKM® Brushless Servo Motor

AKM 6 2 P – A N C N DA 00

AKM Series

Flange Size

1	40 mm
2	58 mm
3	70 mm
4	84 mm
5	108 mm
6	138 mm
7	188 mm
8	260 mm

Rotor Length

1
2
3
4
5

Winding Type

A to Z

S	Special

Flange

A	IEC with tolerance N
B	NEMA
C	Alternative IEC standard
D	Other standard
G	Alternative IEC standard
H	Alternative IEC standard
R	IEC with tolerance R
M, T	Reinforced bearing AKM8
W	Flange coating for Washdown, IEC
S	Special

Version

00	Standard motor without shaft seal
01	With shaft seal
0W	Washdown
0F	Washdown Food
FAN	Fan Option for AKM7 only
xx	Special

Feedback Device

For all options see page 19

S	Special

Brake

2	24 V holding brake
N	Without brake
S	Special

Connections

For all options see page 19

S	Special

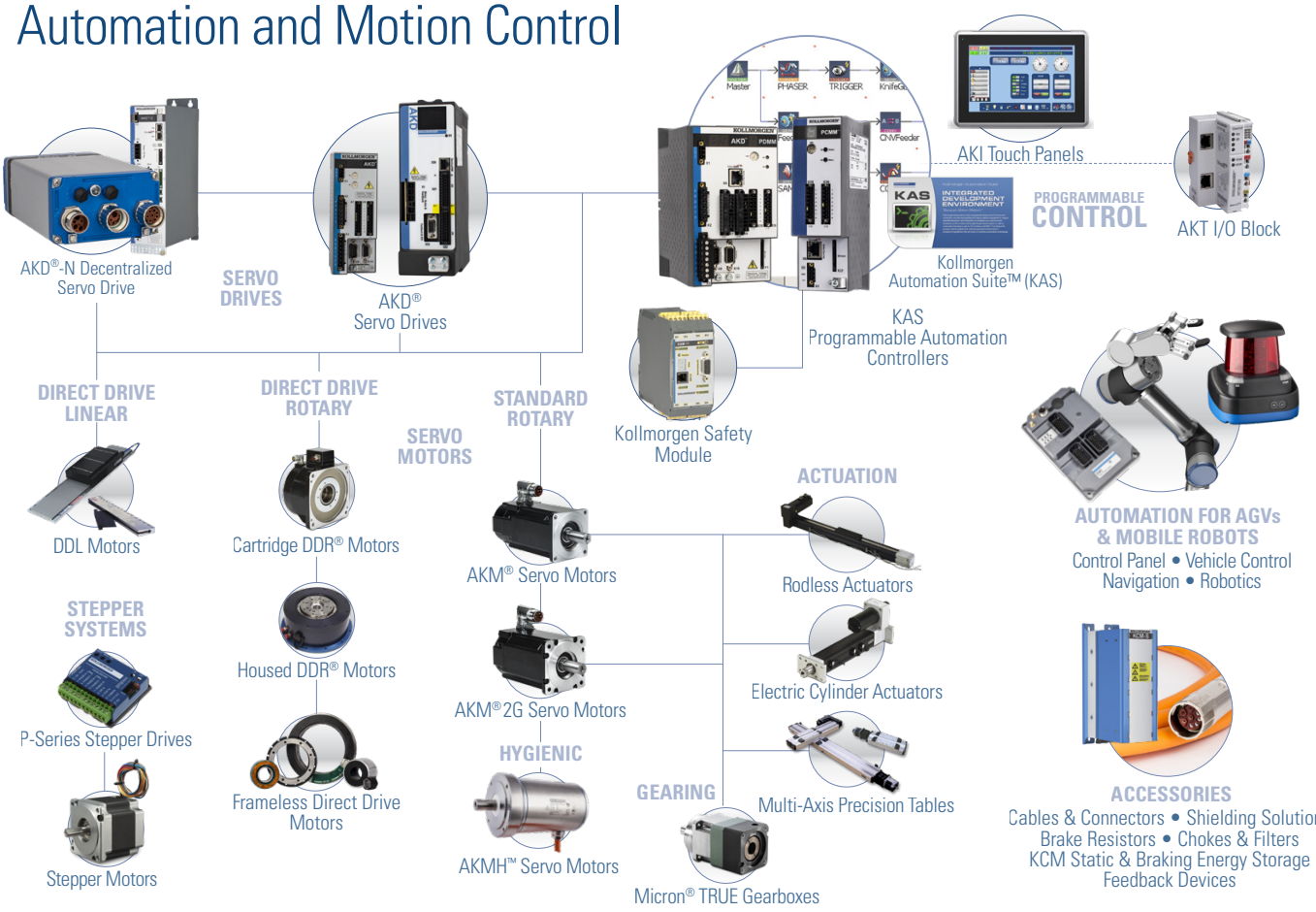
Shaft

C	Keyway
K	Open keyway
N	Smooth shaft
S	Special

Note: Options shown in blue text are considered standard.

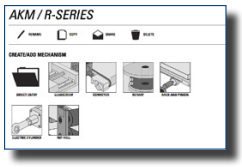
Kollmorgen Solutions

Automation and Motion Control



Self-Help Tools

Motioneering® Online

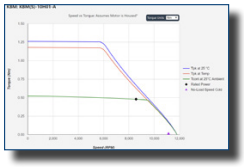


Size and select the right product for your application needs

Drawing Generator

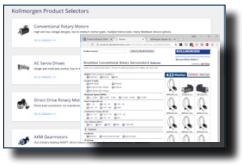
Provide TBM/KBM/AKM 2D and 3D drawings in many popular formats

Performance Curve Generator



Optimize TBM/KBM/AKM windings using customer supplied environmental and drive information

Product Selector

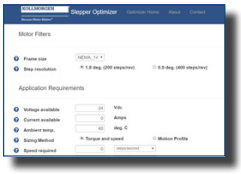


Choose right product for your application needs

Kollmorgen Developer Network

Find Answers to many key technical questions or start your own session

Stepper Optimizer



Select the most efficient stepper solution for your application