

SFA Cable Modifications

This application note describes how to remove the outer cable jacket from the Smart Feedback Adapter (SFA) cable and solidly clamp it to the servo drive's grounding bracket for the multiple AKD2G drive connector configurations.

Safety Recommendations!



Follow all safety recommendations, outlined in the drive Installation Manual. Only qualified individuals should perform this work after locking out all energy sources feeding the equipment being modified.



For general installation information and safety concerns, follow all instructions in the drive Installation Manual.



Review this entire document prior to commencement of work to familiarize yourself with all aspects of the work scope. Obtain all supplies, tooling and items listed in Required Tools and Supplies section of this document prior to commencement of any work.

Preparation

Obtain all items listed in Required Parts and Tools. Items consist of common hand tools, a multi-meter, a cable jacket stripper, and copper foil shielding tape. Additional grounding brackets and clamps are available from Kollmorgen.

NOTICE

The insulation of the conductors must not be harmed or damaged in any way! When configuring the blade depth of the jacket-cutting tool, it is critical that the blade depth is set to a conservative distance. If the incision is too deep, damage may occur to the insulation of the conductors within the cable. A replacement cable may be required.

Required Tools and Supplies



Safety Knife



Wire Cutters



Ferrule Crimpers



Wire Strippers



Cable Slitter



Heat Gun



Small Head
Screwdriver



Conductive Foil Tape
3M #1181 or
equivalent



22 AWG Ferrules with
8 mm barrel lead



Shrink Tubing
6.4 mm [1/4 in.]
1.2 mm [3/64 in.]



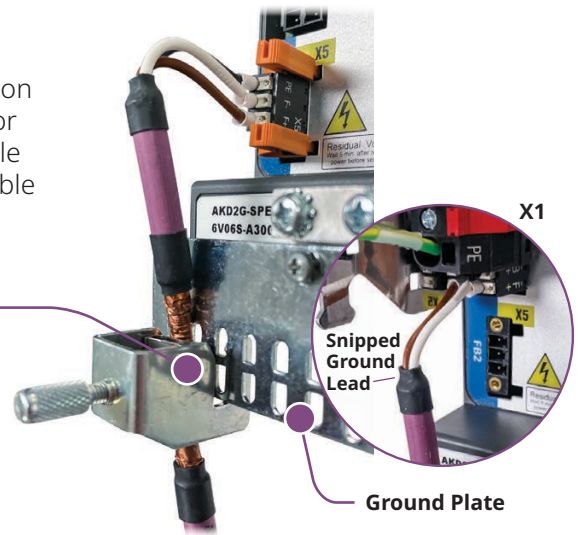
Phoenix Contact SK14
Shield Clamp
Kollmorgen #DE-108248

SFA Cable Modifications


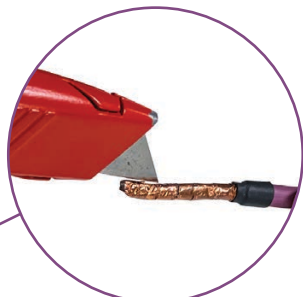


The SFA (Smart Feedback Adapter) cable is supplied ready to use on AKD2G drives with the "6V" option (120 - 240 V_{AC}) X1* connector, or drives with the optional X5 connector. Using the SFA adapter cable with other AKD2G drive-connector configurations requires the cable to be modified for proper use and compliance.



It is always best practice to have the cable secured to the drive's ground plate for optimal grounding and strain relief.

*When connecting the leads to an AKD2G 6V X1 connector, either snip the ground lead when grounding to the plate (preferred), or connect the ground lead to the X1 power ground or X1 ground plate.



Procedure to Modify the SFA Cable for Optional Configurations

1.  Cut off the cable end at the edge of the ground section closest to the flying leads.
2.  Using a safety knife, cut a slit along the length and peel away the grounding tape.
3.  Unbraid and remove the shielding, being careful not to cut away the ground wire.
4.  Cut away and remove the existing shielding, heat-shrink jacket, polywrap, and fillers, leaving just the separate ground, brown, and white wires exposed.

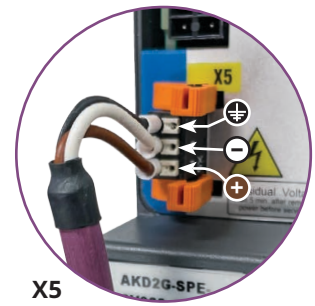



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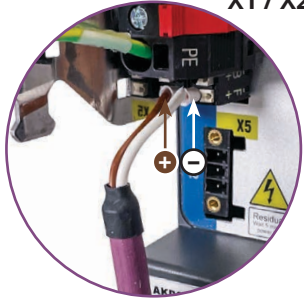
5. Prepare the ground wire:

» If the SFA cable is to be connected to the X1 or X2 port, cut the ground wire away flush to the edge of the shield jacket.

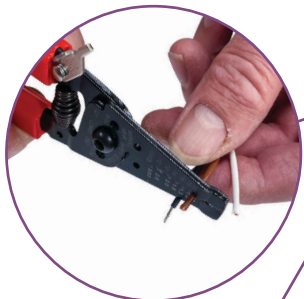


X5

X1 / X2



» If the SFA cable is to be connected to the X5 port, slide a 1.2 mm [3/64 in.] diameter heat-shrink insulating sleeve over the ground wire, leaving enough wire exposed to slide into the ferrule. Use a heat gun to shrink the sleeve to the wire.

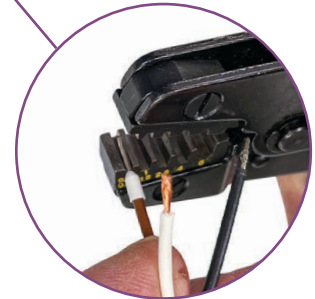
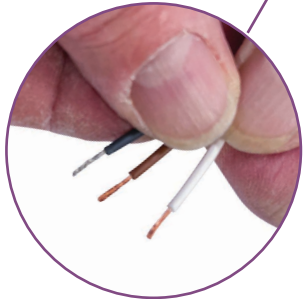


6. Strip away enough insulator jacket from the white and brown wires to add ferrules*.

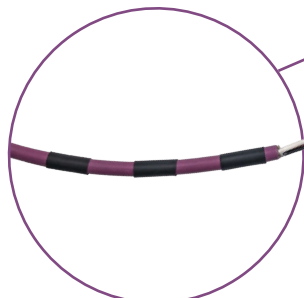
*Use 22 AWG ferrules with 8 mm barrel leads



7. Add ferrules to the lead ends and crimp in place.

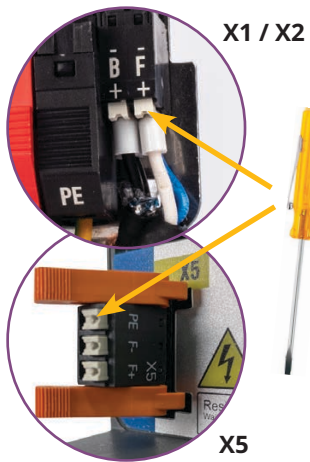


8. Slide 3 pieces of cut 6.4 mm [3/64 in.] diameter heat-shrink (~19 mm [3/4 in.]) past the leads and over the SFA cable insulator jacket.



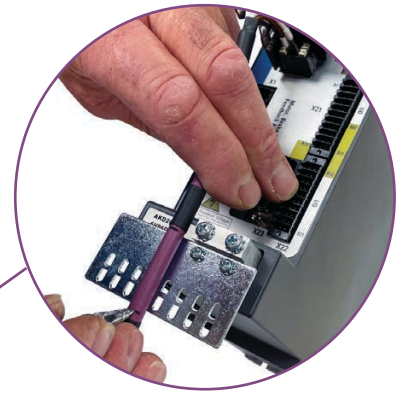
9. Shrink the first heat-shrink piece over the end of the SFA cable insulator jacket overlapping the flying leads. Do not shrink the other 2 pieces of heat shrink tubing.





10. Temporarily insert the ferruled leads while depressing the wire clamp release buttons with a small screwdriver. Refer to the images on Step 5 for lead placement.

11. Mark the location for the grounding strip with the cable in position.



12. Use a cable splitter set to a depth that only cuts through the jacket and leaves the braided shield intact. Cut around the jacket at the marked locations. If needed, practice on the discarded piece of cable.



13. Using a safety knife and being careful not to cut through the braided shield*, cut along the length between the circumferential splices and peel away the jacket.



*If the shield is cut, it will compromise the integrity of the cable.

14. Apply and wind ample conductive shielding foil tape* around the exposed shield.



*3M 1181 or equivalent

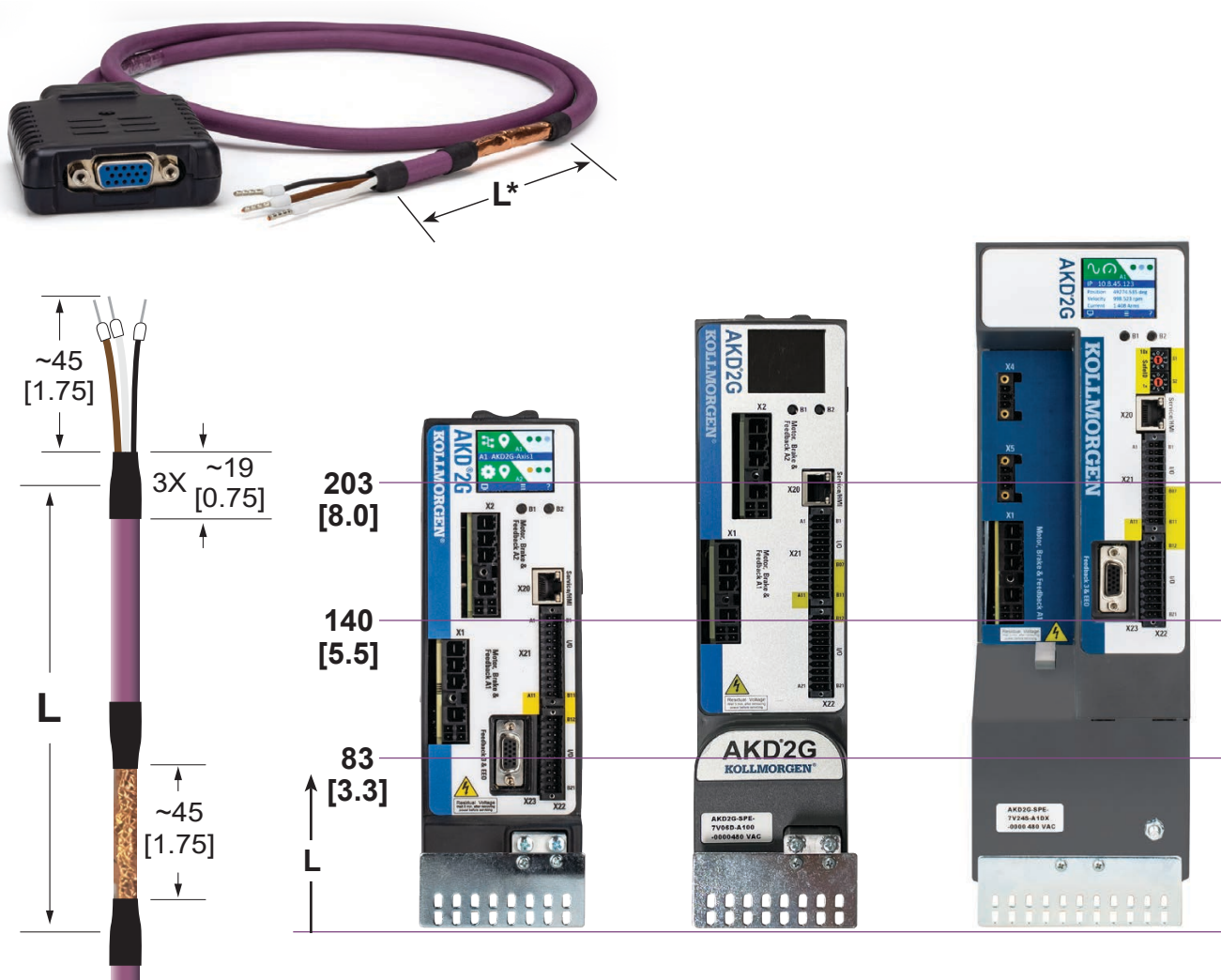
15. Slide the remaining two heat-shrink pieces over both ends of the applied grounding tape. Use a heat gun to shrink-fit the sleeves in place.



The SFA cable is now ready to be connected to the desired drive connector and grounding plate.

Ground plate shield clamps are available from Kollmorgen. Recommended: Phoenix Contact SK14 shield clamps with clamp range of 6-13 mm - Order code: DE-108248

Approximate Modified Cable Dimensional Values Per Drive Connector



	SFA Cable Drive Connector		
Length (L) Ground Strip to flying leads	AKD2G 6V 3 & 6 Amp Drive	AKD2G 7V 3, 6, & 12 Amp Drive	AKD2G 7V 24 Amp Drive
~ 203 mm [8.0 in.]	-	X2	X5
~140 mm [5.5 in.]	X2	X1 / X5	X1
~83 mm [3.3 in.] (As supplied)	X1 / X5	-	-

Dimensions: mm [in.]