BISS C for Renishaw Resolute absolute encoders with the AKD Drive Rev. A 6/7/2016

NOTE: This application note is not a substitute for analyzing and reviewing both the Renishaw documentation for a given model of feedback and the Kollmorgen cable drawing (if applicable) to assure the wiring to the AKD's X10 primary feedback connector and that the Renishaw read-head is wired correctly.

Renishaw uses a different naming convention for their BISS C Resolute encoders than the AKD installation manual and documentation. They indicate "clock" by MA and "data" by SLO.

MA=Clock

SLO=Data

The AKD Installation manual shows the pinout on the encoder end based on a Kollmorgen feedback cable. The encoder side pinouts have been eliminated in the diagram below to demonstrate the connection generically.

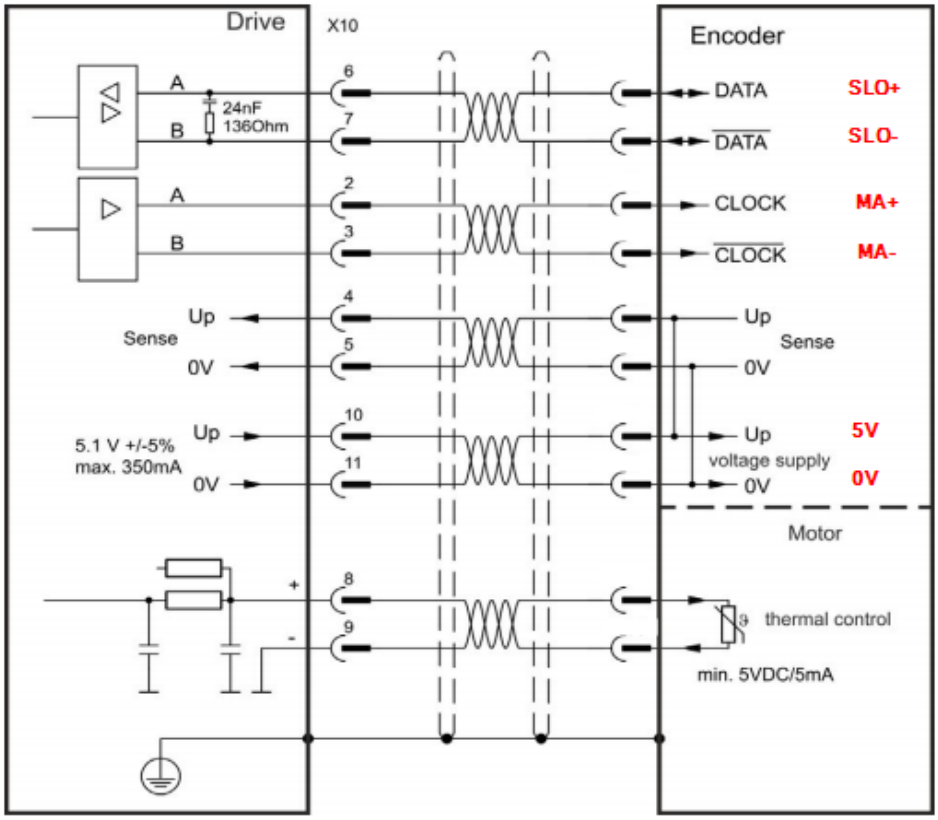
8.12.8.2 BiSS (Mode C) digital

The diagram below shows the wiring of a single-turn or multi-turn encoder with BiSS Mode C interface from Renishaw (specifically model Resolute RA26B) as a feedback system. The thermal control in the motor is connected via the encoder cable and evaluated in the drive.

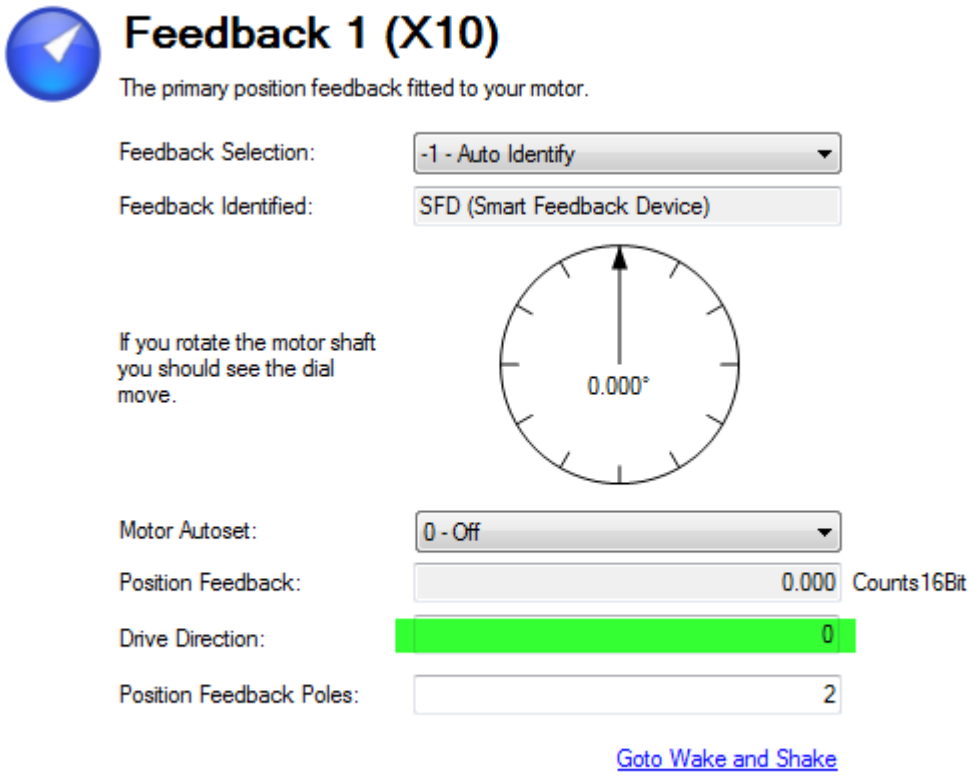
If cable lengths of more than 25 m are planned, please consult customer support.

Type	FBTYPE	Up	Frequency Limit
BiSS Mode C	34	5.1 V +/-5%	2.5 MHz

The pin assignment shown on the encoder end relates to Kollmorgen motors.



When using Renishaw BISS C rotary encoders with Kollmorgen frameless motors note the orientation (and direction) of the encoder relative to the stator of the frameless motor is important for commutation. For example the RBE and KBM catalogs show what is considered CCW or CW rotation relative to the side where the leads exit the stator. Likewise, when using a Kollmorgen DDL direct drive linear motor and a Renishaw BISS C linear encoder, note the encoder's orientation (and direction) . Since a BISS C encoder is purely digital there is no method in the drive to change the encoder's direction (counting up or down). Although changing the orientation of the encoder is a possible solution, changing the motor phasing from the conventional phasing is typically easier. Note the AKD's DRV.DIR is for changing the direction of the drive (positive or negative) when the application requires a direction opposite of default. It is not intended for inverting the feedback's direction. Determine correct feedback and motor phasing and successfully run the commutation alignment check on the Wake and Shake screen to get your motor to commutate before changing DRV.DIR from the default of 0 to 1 if the application requires it.



The setup of Renishaw BISS C encoders whether linear or rotary are covered in other articles on the KDN.