

RCE-710 Quick Start Guide

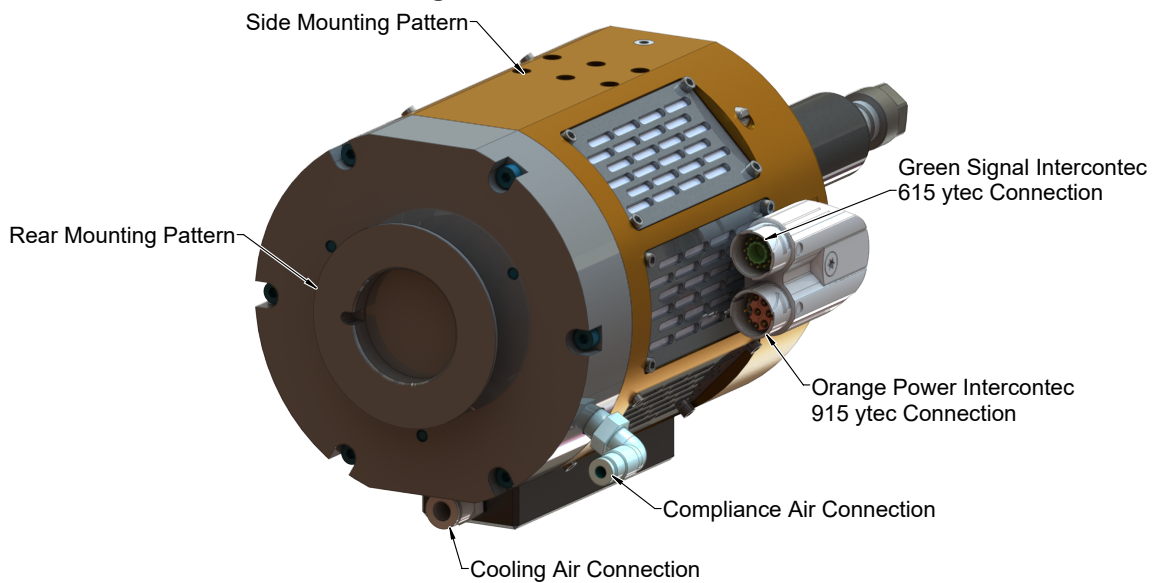
This document is intended to guide the user through setting up, wiring, and connecting an RCE-710 to a servo drive.

1. Initial Set-Up

Parts required: Refer to the [RCE-710 manual](#)

1. Mount the RCE-710. The RCE-710 can be side or rear mounted. Reference the [RCE-710 manual](#) for detailed installation instructions, including appropriate interface plates.
2. Plug in the 4mm (5/32") air tube into the compliance connector.
3. Optional: Plug the 1/4" tube into the cooling air manifold, reference [Figure 1.1](#). The cooling air may be required for more repetitive applications.

Figure 1.1—RCE-710 Overview



4. Connect the power and signal connections. Align the engraved dot on the cable with the circle on the RCE-710 and push to connect. Reference [Figure 1.2](#).

Figure 1.2—Connecting Power and Signal Cables

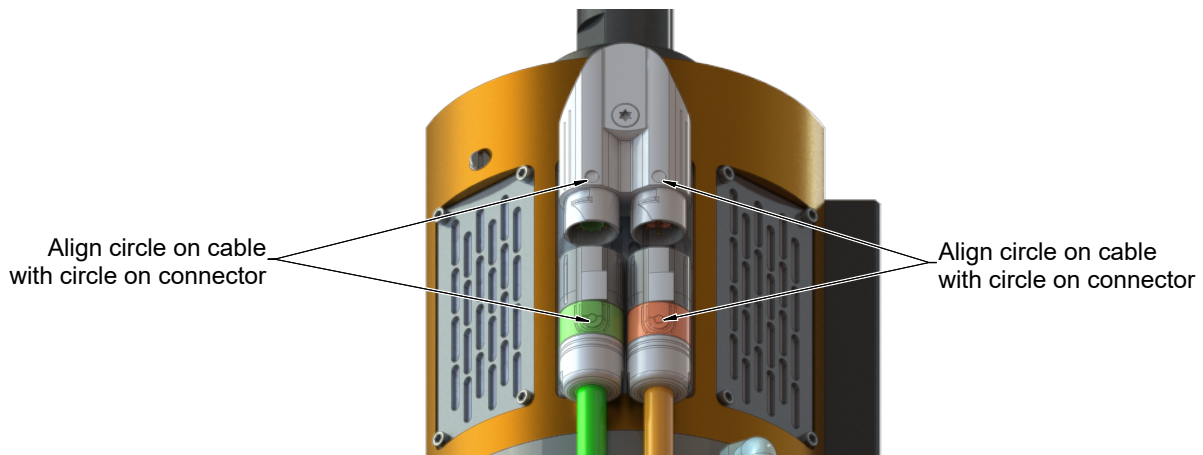


Table 1.1—Orange Power Intercontec 915 ytec		
Intercontec 915 pin out	Pin	Description
	A	U
	B	V
	C	W
	GND	Ground / Protected Earth
	5	N/C
	6	
	7	
	8	
	9	

Table 1.2—Green Signal Intercontec 615 ytec		
Intercontec 615 pin out	Pin	Description
	1'	Hall 1 (UV)
	2	Hall 2 (VW)
	3	Hall 3 (WU)
	4	0V
	5	(+) 5 – 24 VDC
	6	(-) Temp Sensor
	7	(+) Temp Sensor
	8	N/C
	9	
	10	
	11	
	12	

Note:

- Pin 1 is located directly underneath alignment circle on top of connector.

- Route all cables and utilities down the robot arm ensuring ample bend radii.

NOTICE: Avoid tight loops or bends in cables. Use a motor cable that is short as possible without impeding robot motion. Cutting and stripping the supplied cable may be required to achieve this.

- Wire the power, signal and I/O connectors to the servo drive. Reference [Section 2—Wiring Kollmorgen AKD2G Drive](#) for detailed wiring information.
- Enable the motor and set the tool to the desired speed. See [Step 4—Wire X21 for control and feedback signals](#) within [Section 2—Wiring Kollmorgen AKD2G Drive](#).
- Test the robot program on a test part and observe the finish. Readjust tool parameters until desired finish is achieved.

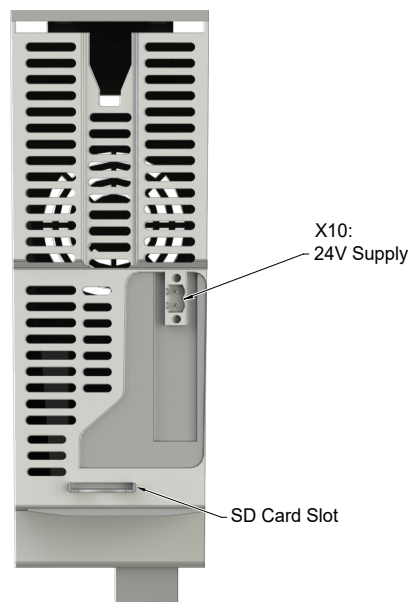
2. Wiring Kollmorgen AKD2G Drive

Parts required:

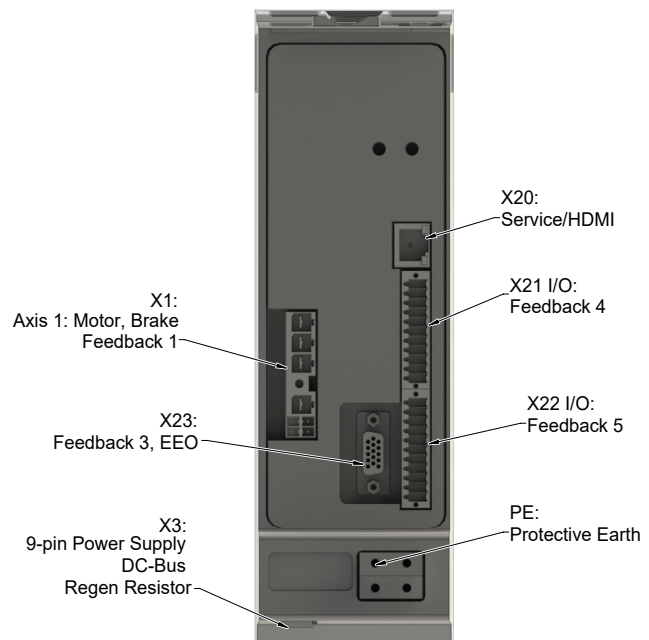
- 220V power source (120V accepted, but limits performance)
- 24 VDC power supply (minimum 3A recommended)
- 1.5A fuse
- E-Stop button (recommended)
- 16-20 AWG wire
- 22-24 AWG wire
- Cable for input power
- RJ45 Ethernet cable (X20) (optional)
- Drive connectors:
 - Weidmuller BVF 7.62HP/04/180MF4 BCF/06R SN BK BX Female Terminal Block (X1)
 - High Density Dsub 15-pin Male Connector (X23)
 - 8-pin, pitch 7.62mm Pluggable Female Terminal Block (X3)
 - 2-pin, pitch 5.08mm Pluggable Female Terminal Block (X10)
 - 2 x 11 pins, pitch 3.5mm Pluggable Female Terminal Block (X21)

Figure 2.1—AKD2G Overview

Side View:

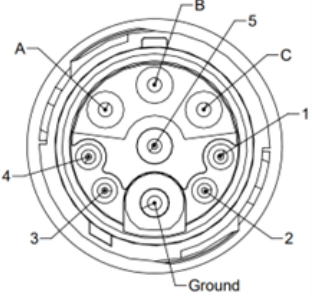
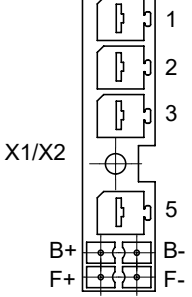


Front View:



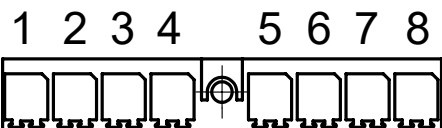
1. Mount the AKD2G motor to the backplane of the controls cabinet and ensure adequate grounding.
2. Wire X1 with the Orange Intercontec 915 ytec from the RCE-710. Only pins 1, 2, 3 and 5 need to be wired.

Table 2.1—Orange Power Intercontec 915 ytec

Intercontec 915 Pin Out	X1 Connector Pin Out	Intercontec 915 (Orange Cable)	X1 Connector
		A (U/L1)	1
		B (V/L2)	3
		C (W/L3)	2
		Ground (PE)	5

3. Wire X3 for input power using a recommended 220V. The drive is programmed to accept both 220V and 120V, though using 120V will limit performance.

Table 2.2—X3 Connector

X3 Connector Pin Out	Power Cable	X3 Connector
 <p style="text-align: center;">X3</p>	Ground	1
	Line	2
	Neutral	4
	Jumper to 6	5
	Jumper to 5	6

4. Wire X21 for control and feedback signals:

- a. Supply power to the motor. Wire the X21 digital signals as described in [Table 2.3—X21 Connector](#).
- b. Set RPM. Supply pin A1 with voltage between -10V and 10V. Supplying -10V corresponds to max speed (15000 RPM) in the counter-clockwise direction, 0V is stopped, and 10V will result in the max speed (15000 RPM) in the clockwise direction. Reference [Figure 2.2](#) for more detail.

NOTICE: Any voltage input on pin A1 between -.3V and .3V will result in no motion. This deadband on the Set RPM input prevents unwanted motion due to signal offset or noise.

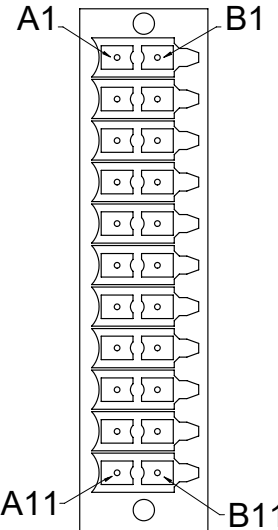
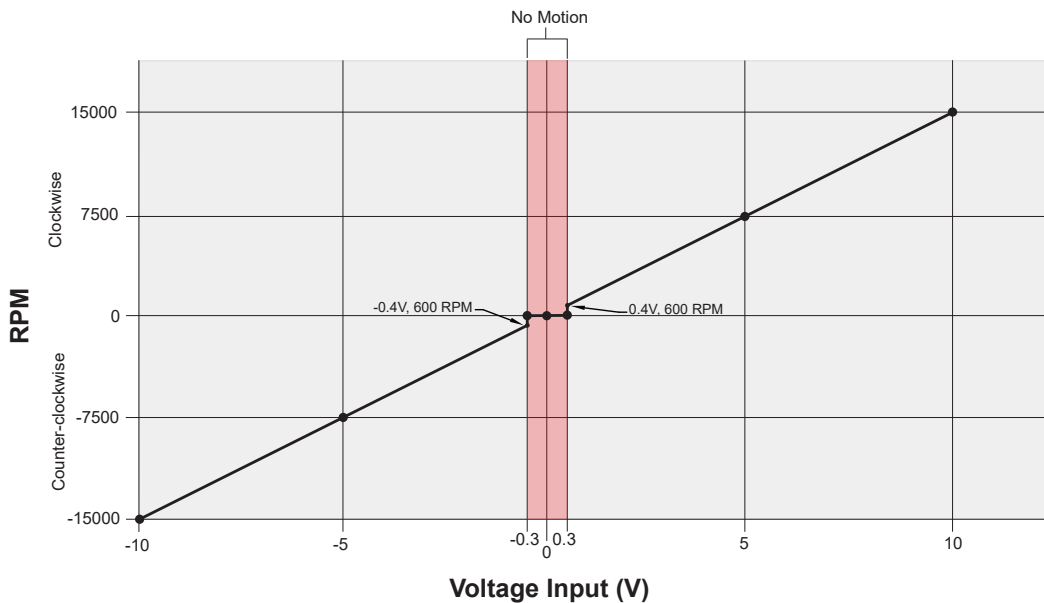
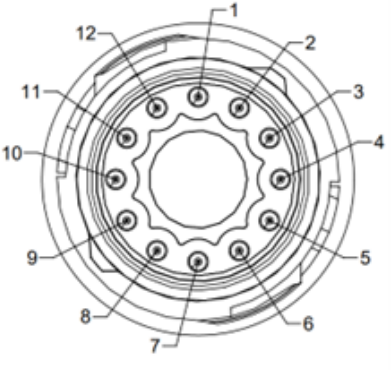
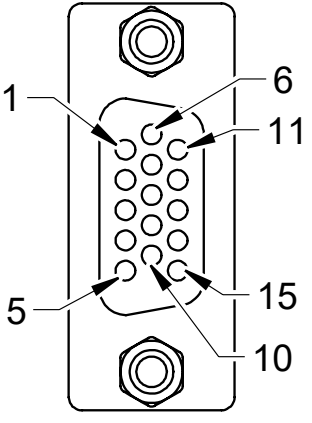
Table 2.3—X21 Connector				
X21 Pin Out	Pin	Description	Signal Type	Voltage/Current Limits
	Digital Signals			
	B8	Axis Faulted	24V Digital Output	30V/20mA
	B7	Ready to Operate		
	A5	Enable/Disable Axis	24V Digital Input	
	B4	Digital Signals Ground	Ground	GND
	RPM/Load Monitoring			
	B1	RPM Monitoring	10V Output	10V/1mA
	B2	Analog Ground	Ground	GND
	Set RPM			
	A1	Set RPM	±10V Input	±10V/1mA
	B2	Analog Ground	Ground	GND
	Safe Torque Off			
	A11	STO-A-A1	Safe Digital Input	ON: 17-30VDC, 5mA-6mA OFF: 0-5VDC, max 1mA
	B11	STO-B-A1		

Figure 2.2—RPM per Voltage Input



5. Wire X23 with the green signal cable from the RCE-710 for hall sensor and thermal overload feedback.

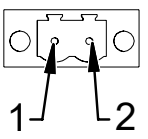
Table 2.4—Green Signal Intercontec 615 ytec

Intercontec 615 Pin Out	X23 Connector Pin Out	Intercontec 615 (Green Cable)	X23 Connector
		1 ¹	3
		2	1
		3	2
		4	11
		5	10
		6	9
		7	8

Note:
1. Pin 1 is located directly underneath alignment circle on top of connector.

6. Wire X10 connector for 24V I/O power.

Table 2.5—X10 Connector

X10 Connector Pin Out	Power Supply	X10 Connector
	+24VDC	1
	Ground	2

7. Optional: Plug an ethernet cable in to X20 to control the drive through Kollmorgen’s **WorkBench** software. See the [Kollmorgen AKD2G manual](#) for more information about connecting to and operating the servo drive through **WorkBench**.

3. Motor Specifications

Table 3.1—Motor Specifications	
Motor Name	KBMS-10H02-C
Motor Type	Rotary, Permanent Magnet
Continous Current	5.14 Arms
Peak Current	15.5 Arms
Coil Thermal Constant	7.176 mHz
Inductance (quad, I-I)	3.2 mH
Inductance (direct, I-I)	3.2 mH
Inductance Saturation	18000 Arms
Motor Poles	6
Motor Phase	0 deg
Inertia	.249 kg*cm ²
Torque Constant	.173 Nm/Arms
EMF Constant	10.46 Vrms/k-rpm
Motor Resistance (I-I)	1.77 Ohm
Maximum Voltage	240 Vrms
Maximum Speed ¹	17000 rpm
Notes:	
<ol style="list-style-type: none"> 1. AKD2G drive limits motor speed to 15000 RPM 2. For more information on the motor, refer to the Kollmorgen website. 	