

# Release 3 | Power Architecture and Analysis May 2019

## **New Feature Summary**

Release Summary	2
Architecture Overview	2
Power Analysis	3
Other Improvements	4
Product Summary	4
Kinetix 5700 Large Frame Inverters	4
Kinetix 5700 Regenerative Power Supplies	4
Known Anomalies	5

### **Release Summary**

Release 3 focuses on improving the user experience and workflow for Architecture Overview and Power Analysis. Additionally, many of the computational resources for sizing buses were updated for the Kinetix products that require shunts, capacitors, and/or power supplies. Products impacted by this release include the Kinetix 300, 350, 5500, 5700, 6000, 6200, 6500, and 7000.

The Architecture Overview was updated to accommodate drive architecture for Kinetix drive systems with regards to buses and power requirement definitions. Furthermore, the Power Analysis workflow and user experience was updated to provide more design data and faster power computations.

Lastly, the Kinetix product line introduced new regenerative power supplies and large frame inverters. The part numbers for these products are listed below and additional product detail can be found on the Motion Control section of the Rockwell Automation corporate page - <u>Kinetix Integrated Motion on</u> <u>EtherNet/IP Servo Drives</u>.

#### Architecture Overview

ROKMotionControl D Architecture Preferences Power Analysis Bill of Materials	
Architecture Overview (0) Items Selected @Duplicate Delete Add A Bus + Add	Your Project Total Axes: 1 Shared Buses: 0 Standalone Buses: 1
□ Axis 1 🖉 View Details 🗸 🕅 🖗 📽 📫	€DIT v° Shared Users →
Move to Bus         Move to Cluster ()         Remove From           Power Bus         There are no available Clusters.         Current Cluster           Move to New Cluster         Current Bus         Current Bus	© Comments ✓ © Now Editing □ Restore from Snapshot
Figure 1: Architecture Overview	

Architecture Overview now supports the following features and functionality:

- 1. Bus Creation simply click the "+Add A Bus" button and a blank bus will be added to your project workspace.
- Cluster Creation clusters can be created if the axis utilizes a Kinetix 5700 drive product and it is part of an existing bus. The feature can be access from the nested "Move Axis" menu on the axis bar.
- 3. Axis Assignment the "Move Axis" allows users to manipulate relationships with buses and clusters in the Architecture Overview workspace.
- 4. Power Requirements define the bus power for shared/common or stand-alone drives. Drives will inherit the power requirements at the bus level.
- 5. Project Metrics provides axis and bus count. Particularly useful in large or mixed architecture projects.

**Power Analysis** 

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- 1. Workflow now users start defining axis/bus architectures in the Architecture Overview and progress to the Power Analysis which consists of three pages: Bus Listing, Profile Sequencing, and Power Analysis.
- 2. User Experience the pages listed in the workflow above are new. The Bus Listing allows users to select buses for component sizing. The Profile Sequencing page allows users to align single or multi-axis motion profiles for power generation and/or consumption. Lastly, the Power Analysis tab will automatically select power components based on the aggregate power profile generated in the Profile Sequencing tab. Examples of each user experience is provided below Figure 2-4.

ROKMotionControl D Architecture Preferences Power Analysis Bill of Materials	
Power Analysis	Kernel Back to Architecture Overview
Power Bus Ø Clusters: 0 Axes: 1 Summary: ✓ View Details > Set	Your Project
	Total Axes: 1 Shared Buses: 0 Standalone Buses: 1
	Export as XML
	⊗ Snapshot ∨
	≪ <sup>©</sup> Shared Users ∨
	⊚ Comments ∨
	m Now Editing
	🗀 Restore from Snapshot
Figure 2: Bus List	



Power Bus 🖉 Clusters: 0	Axes: 1 Summary: 🗸			View Details > Setup	Your Projec
✓ Profile Sequencing	✓ Protific Sequencing		✓ Power Summary		Total Axes: 1 Shared Buses: 0
Power Supply Catalog #: 2198-P031				Auto Manual >	Standalone Buse
wer Supply Options			VDC Setpoint @ 715 V 🖌 Regulation Enabled @ 🖌 Pow	er Supply In Standalone Cluster 🖸	Export as XML @Snapshot ~
hunt None Selected				Auto Manual >	Shared Users
apacitor () None Selected				Auto Manual >	⊕ Comments ♥ ⊕ Now Editing
				CALCULATE	Restore from :
ver Analysis Results					
verage Power: 0.4 KW	Average Motoring I	ower: 0.4 kW		Average Regen Power: 0 kW	
Bits         CC: Bits: Continues Current         CC: Bits: Continues Current           CC: Bits: Fold://Elitaria         CC: Bits: Continues Current         CC: Bits: Fold://Elitaria           Shunt         Continues Fold:         Continues Fold:         Continues Fold:					
0 Watts / 25 Watts					
Bus					
100 600 600				0.95 0.77	
50 S				0.6 000	

#### Other Improvements

- 1. Updated the service that populates the Architecture Overview page. Users should see faster loading times of this page.
- 2. Migrated bus power profile sizing functions for each drive family to a functionally specific service for improved speed and persistent bus settings. Users should see faster processing times and improved productivity in Power Analysis.
- 3. Updated the shunt sizing algorithm to accommodate a variety of use-cases and shunts types. This include active shunts, passive shunts, and bus protective shunts (e.g. VPC in overspeed operating conditions)
- 4. The application template for Carriage Cut Off wasn't generating a motion and load profile. This was fixed in this release.
- 5. There was an anomaly on the Axis Analysis page was preventing users from sizing up/down motors. This was fixed in this release.

## Product Summary

Kinetix 5700 Large Frame Inverters Part Numbers Include: 2198-S263-ERS3, 2198-S263-ERS4, 2198-S312-ERS3, 2198-S312-ERS4

Kinetix 5700 Regenerative Power Supplies Part Numbers Include: 2198-RP088, 2198-RP200, 2198-RP263, 2198-RP312

Please reference this <u>link</u> for more product information.

## **Known Anomalies**

- 1. Older project XML files may not import into the tool properly. Projects existing in the cloud can be exported and re-imported without issue. This known anomaly will be address in an interim release.
- 2. Users may need to reorganize and associate axes in the Architecture Overview based on their product and system architecture.