



Motion Analyzer 4.71 | Release Notes

Change Motor Issues Resolved Motion Analyzer 4.71

1. Inertia Calculator passing incorrect unit conversion data to Motion Analyzer on some installations when US units are set as default
2. Energy Torque calculations not occurring on rotary load
3. Motor Thermal calculations without gearbox
4. Rated RMS Torque and the Rated Average Current are zero when a Motion Analyzer 4.6 file is opened in Motion Analyzer 4.7

New Feature Overview Motion Analyzer 4.7

- MPMA – Multi Axis Stages
- Linear Motor Components
- MPAR and TLAR Electric Cylinders
- Rotary Unbalanced Load template
- Power Supply Section GUI changes
- Efficiency Analysis
- Profile Editor Languages
- Profile Editor Additional Segment Types
- Inertia Calculator – Mass and Diameter calculation added
- Motion Selector Integrated into Motion Analyzer
- Custom Motors Worksheet
- Drive Capacity for E-stop
- Additional Encompass Partner Gearboxes
- 460 VAC Induction Motors for PowerFlex Drives

New Feature Details

1. MPMA – Multi Axis Stages product addition
 - a. Only one Multi Axis Stage per Motion Analyzer file
 - b. MPMA units are not supported in the Bill of Materials section
2. Linear Motor Components
 - a. LDC-Series Iron Core Linear motor component sizing
 - i. Available at 230VAC and 460VAC ratings
 - b. LDL-Series Ironless Core Linear motor component sizing
 - i. Available at 230VAC only ratings
 - c. Only air cooled units offered
 - d. Only free weight counter balance for vertical mechanisms
 - i. Limited acceleration to 1 G
3. MP-Series (MPAR) and TL-Series (TLAR) Electric Cylinders
 - a. TLAR units are 230VAC only
 - b. MPAR units are available in 230VAC or 460VAC
 - c. MPAR / TLAR units are not supported in the Bill of Materials section
4. Rotary Unbalanced Load template and Rotary Complex Load
 - a. Rotary Unbalanced Load template enhanced for angle of rotational axis. Addition of Axial Angle for non horizontal angles.
 - b. Rotary Complex Load – Static Friction column added to the calculations
5. Power Supply Section GUI changes
 - a. Updated Axis Data – Axis data and graph page merged together.

- b. Updated IAM / Shunt Display – IAM / Shunt tab added with new data display of module properties. Search for IAM and Shunt relocated to this tab.
 - c. DC Bus Analysis moved to a Tab on the Power Supply Section from the previous location on the Data tab.
 - d. Addition of an Energy Tab – Displaying Input Power, System Power, Shunt Power, and Energy Savings Estimates
6. Efficiency Analysis
- a. Torque Analysis on the axis solution has changed to Efficiency Analysis. Power Analysis and Energy Analysis tabs have been added along with the Torque Analysis
7. Profile Editor Language switching
- a. English
 - b. Korean
 - c. Italian
8. Profile Editor – Additional Segment Types
- a. Simple Harmonic Motion Index
 - i. This move type will reduce the motor heating compared to a Trapezoidal move. This move type is not supported in RSLogix 5000 natively. Motion Analyzer Profile Editor is used to build the cam, and then it can be exported to the RSLogix 5000 Cam editor in a MATC or MAPC instruction. Peak speed is 105% and peak acceleration rate is 111% compared to a Simple Trapezoidal move.
 - b. 3-4-5 Polynomial Index
 - i. This move type reduces mechanical stress on the system. This move has the highest peak speed. This move type is not supported in RSLogix 5000 natively. Motion Analyzer Profile Editor is used to build the cam, and then it can be exported to the RSLogix 5000

Cam editor in a MATC or MAPC instruction. Peak speed is 125% and peak acceleration rate is 128% compared to a Simple Trapezoidal move.

c. Modified Sine Index

- i. This move type is used to reduce the peak power required by a move. This move type is not supported in RSLogix 5000 natively. Motion Analyzer Profile Editor is used to build the cam, and then it can be exported to the RSLogix 5000 Cam editor in a MATC or MAPC instruction. Peak speed is 117% and peak acceleration rate is 124% compared to a Simple Trapezoidal move.

d. Logix Elements

- i. RSLogix 5000 Cam profiles can be imported into this move segment in the Motion Analyzer Profile Editor. The profile editor can not handle two consecutive linear segments at this time. Cubic segments and a mix of Cubic and Linear segments can be imported. The entire Cam profile import is treated as one segment in the Profile Editor.

9. Inertia Calculator

- a. Added the ability to calculate inertia from Mass and Diameter. This function was removed in Motion Analyzer 4.6 and is now being returned.

10. Motion Selector Integrated into Motion Analyzer

- a. Motion Selector has been integrated into Motion Analyzer. An additional tab appears in each Axis and the Power Supply page to select options. The overall Bill of Material selection is added to the button bar. Also the ability to create a Bill of Material only without the need to size a Motion Analyzer axis.

11. Custom Motors Worksheet

- a. The ability to create custom motors for use with Kinetix 7000 and PowerFlex drives. The data for these motors can not be verified by Rockwell Automation; the results from the motor data can not and will not be verified by Rockwell Automation Technical support.

12. Drive Capacity for Controlled Maximum Stop

- a. Calculated drive capacity to handle a Controlled Maximum Stop after the drive and motor thermal utilization has stabilized.

13. Additional Encompass Partner Gearboxes

- a. Apex
- b. Stober

14. 460 VAC Induction Motors for PowerFlex Drives

- a. Added CM222 460 VAC motors to the database for use with PowerFlex drives. To use with CM222 motors rated for 230 VAC systems, double the current of the 460 VAC drive for the selected motor that is capable of 230 / 460 VAC connection.

15. SolidWorks Motion Simulation Assistant

- a. Motion Analyzer now has the ability to run Motion Studies within SolidWorks. Motion Studies enhance the ability of Motion Analyzer to size complex loads.

Other Changes

1. Added warning message that calculations may not complete if the cycle profile is longer than 120 seconds when switching to the Power Supply tab.
2. Removed 8720MC-RPS027 from the database
3. Added compatibility for MPAR and TLAR units missing from the database

Known Limitations

1. Kinetix 6200 Bill of Materials is not supported in this release
2. MPAR / TLAR cables not selectable in Bill of Materials. Cables must be selected manually.
3. MPMA Stages Bill of Materials is not supported in this release
4. PowerFlex drives are not supported by Simulation or in Bill of Materials in this release
5. For application sizing, selection of IAM in Power Supply/Accessories View will be updated in Bill of Materials only after User visits the "Configure Axis BOM" tab of the first axis
6. SolidWorks units must be set to "Meters, Kilograms, Seconds". To set the units, select → "Options" → "Document Properties" → "Units" to change. If this is not done the units could be returned incorrectly from the SolidWorks Motion Study.

SolidWorks Requirements

Static Inertia Import – SolidWorks 2008 and above

SolidWorks Simulation – SolidWorks 2009 with SolidWorks Motion add-in

Motion Analyzer System Requirements

Installing Motion Analyzer 4.71 – The Setup program checks for the availability of the minimum requirement of disk space / OS / Display resolution, etc. before continuing.

List of various requirements is as follows:

1. Operating System

The following operating systems are supported:

- i. Windows 2000 Service Pack 4
Prerequisite: MDAC 2.8
Download link: [http://msdn2.microsoft.com/hi-in/data/aa937730\(en-us\).aspx](http://msdn2.microsoft.com/hi-in/data/aa937730(en-us).aspx)
- ii. Windows XP Service Pack 2 (or greater)
- iii. Windows Vista
- iv. Do Not install on Windows 95

2. Processor

Pentium III Processor (or greater) is recommended.

3. RAM

Minimum 256 MB RAM is recommended.

4. Screen Resolution

Supported Screen Resolution is 1024x768 (High color). Setup will check the current screen resolution and will provide a warning if screen resolution is less than 1024x768 pixels.

5. Browser

Browser should be IE5.5 or higher.

6. Disk Space

Minimum disk space should be 330MB.

7. .NET Framework

Minimum .NET Framework required is 2.0. System requirements for .NET Framework 2.0 are present at following URL:

<http://www.microsoft.com/downloads/details.aspx?familyid=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en#Requirements>