ORIGIN® 2019b
Graphing & Analysis

Key Features
Use the following tables to check what new features have been added to Origin, compared to your version.

PROJECT MANAGEMENT	2019b	2019	2018*	2017	2016	9.*
Template Library Search by Keyword	✓					
Preview and Thumbnail of Workbooks and Matrices in Windows Explorer and Project Explorer	+	✓	✓			
Backup Folder and Individual Backup File for Each Project for Recovery	✓	✓	✓			
Save Files to or Open Files from Google Drive	✓	✓	✓			
Automatic Audit Log for All Newly Created Projects	✓	✓	✓			
Auto Save Files User Chooses Not to Save	✓	✓	✓			
New project file structure (OPJU) with significant improvement in project size	✓	✓	✓			
Unsaved Projects Auto Saved for 7 days	✓	✓	✓			
Graph Preview, Comments Tooltip in Project Explorer	✓	✓	✓	✓	✓	
Find String anywhere in Project	✓	✓	✓	✓	✓	
Lock Worksheet	✓	✓	✓	✓	✓	✓
Project Explorer Support for Left/Right Split of Panels	✓	✓	✓	✓	✓	✓
Auto-Hide for Project Explorer and other Dockable Windows	✓	✓	✓	✓	✓	✓
Password Protection for Project/Worksheet/Files, and Audit Log of Project Save with Optional Password Protection	✓	+	+	✓	✓	+
Project Explorer Add Window Shortcut to Favorites Folder	✓	✓	✓	✓	✓	✓
Add Comment to Origin Window/Folder	✓	✓	✓	+	+	✓
Project Explorer(PE) to Help Organize Origin Data	+	+	+	+	+	✓

BATCH PROCESSING	2019b	2019	2018*	2017	2016	9.*
Clone Current Project	✓					
Allow Saving Workbook as Analysis Template even if No Operation (such as, Workbook with Cell Formula)	✓					
Support Excluding Specified Operation when Click Recalculate Button	✓	✓				
New App to Distribute Multiple Files across Multiple Cores for Faster Batch Processing	✓	✓	✓			
Save Batch Processing Dialog Settings into Analysis Template	✓	✓	✓			
Support to Add Data from Many Sheets/Books into a Combined Graph or an Existing Graph	✓	✓	✓			
Allow importing data directly into embedded matrix in worksheet when performing batch processing	✓	✓	✓			
Better Summary Book for Graph and Results Viewing	✓	✓	✓			
More Data Source Support Batch Processing	✓	✓	+			
Smart Plotting with Cloneable Graph Templates	✓	✓	✓	✓	✓	
Clone Workbook/Worksheet during Import for Batch Procesing	✓	✓	✓	✓	✓	
Word Template for Report Creation in Batch Process	✓	✓	✓	✓	✓	
Batch Plotting - Duplicate Graphs Using Data from Different Sheets	✓	+	+	+	+	✓
Generate Gadget Output for All Data Plots in the Graph	✓	✓	✓	✓	✓	✓
Copy & Paste Formula and Labels between Columns	✓	✓	✓	✓	✓	✓
Copy & Paste Fitting Operation	✓	✓	✓	✓	✓	✓
Repeat Analysis on All Plots in Graph or All Columns in Worksheet	✓	✓	✓	✓	✓	✓
Batch Processing with Summary Report Using Analysis Templates™	✓	+	+	+	+	✓
Batch Peak Fitting of Multiple Datasets Using Peak Analyzer Theme	PRO	PRO	PRO	+	+	PRO

9.* is for Origin 9 and Origin 9.1 | 2018* is for versions 2018 and 2018b | + indicates feature improved in version

EASE OF USE	2019b	2019	2018*	2017	2016	9.*
HTML/Markdown-based Reports for Repeat Analysis and Publishing	✓					
Highlight Data Plot in Graph, Corresponding Worksheet Column is Highlighted	✓					
Font Control for Notes Window	✓					
Reorganized Main Menu for Easier Navigation	✓					
Reorganized Plot Menu with More Appealing Icons	✓					
Most-Recently Used Fonts Show at the Top of Font List	✓					
Improving Group Folder Sharing with Better Support for Multiple Groups	✓					
Windows-like Search	✓	✓				
New Workbook dialog with many build-in tempaltes,plus ability to add user-template and set as default template	✓	✓				
Support Numeric Units, pi, km, hex numbers etc in worksheet and graph	✓	✓				
Data Point Tooltip: Mouse over data points in graph to view useful information of data point	✓	✓				
Data Highlighter: Highlight data points in all open graph that originate from same row of worksheet	✓	✓				
Plot Highlighting: When selecting a plot in graph or in Object Manager, other plots fade away	✓	✓				
Enhanced Master Page	✓	✓	✓			
New Fit Layers to Page and Set Scale Factor to adjust all layers to have tight fit to page	✓	✓	✓			
Customize Properties Across Graph Layers	+	✓	✓			
Exclude Sheets from Plotting	✓	✓	✓			
Active Window Indicator	✓	✓	✓			
Enlarged graph using scale-in tool supports multiple overlapped layers	✓	✓	✓			
Enhanced Custom Formatting to Support Displaying Numbers in Percent, Fractions, Degrees etc.	✓	✓	✓			
App Center for Easy APP Access and Maintenance	+	✓	✓			
Version-independent Folders for UFF, Licensing, Autosave etc, For Easier Migration to Future Versions	✓	✓	✓			
Several Pre-installed Apps for Publishing and Curve Fitting	✓	✓	✓			

EASE OF USE (CON'T)	2019b	2019	2018*	2017	2016	9.*
Enter Unicode Character by Typing Code and Pressing ALT+X	✓	✓	✓			
Ignore Hidden Ccolumns/Plots From Analysis	✓	✓	✓			
Customize Default Digits for Analysis Output in Each Analysis Tool	✓	✓	✓			
Learning Center Dialog which Helps User to Get Start from Origin	✓	+	+	✓		
Mouseover of Data Plot Shows Tooltip of Source Data	✓	✓	✓	✓		
Switching Layers in Axis dialog	✓	✓	✓	✓		
Provide Option to Use English in Analysis Report	✓	✓	✓	✓		
Better Color Control to Pick more Colors and Define Custom Colors	✓	+	+	+	✓	
Object Manager to Easily Turn On/Off Plots and Layers	✓	✓	✓	+	✓	
Apps Gallery for Managing Apps Installed from File Exchange	+	✓	✓	+	✓	
Improve Curve Fitting and Statistics Dialogs to be Tab-based for Easy Navigation	✓	✓	✓	✓	✓	
Collapsible Menus and Context Menus	✓	✓	✓	✓	✓	
F(x) Column Label Row for Column Formula	✓	✓	✓	+	✓	✓
Set Multiple Column Values	✓	✓	✓	✓	✓	✓
Copy, Paste and Apply Graph Format and Theme	✓	✓	✓	+	✓	✓
Analysis Templates™ with Custom Report Sheets for Repeat Analysis	✓	✓	✓	✓	✓	✓
Consolidated Reports with Collapsible Tables	✓	✓	✓	✓	✓	✓
Save Analysis Dialog Settings as Theme for Future Use	✓	✓	✓	✓	✓	✓
Recalculation of Results on Data or Parameter Change	✓	✓	✓	✓	✓	✓

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ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

GRAPH TYPES	2019b	2019	2018*	2017	2016	9.*
Rug Plots	✓					
3D Parametric Plot	✓					
XY and XYZ Heatmap	✓					
Split Heatmap	✓					
Parallel Plot	✓	✓				
Violin Plot	✓	✓				
Cluster Plot	✓	✓				
Row-wise Line Series with Error Bars	✓	✓				
Tetrahedral Scatters/Lines/Line+Symbols	✓	✓				
Stacked Histogram	✓	✓				
Double Y Trellis Plot	✓	✓				
Contour with Categorical Z Values	✓	✓				
Heatmap with Labels	✓	✓				
Trellis Plot: Stacked Column, 100% Stacked Column and Box Chart	✓	✓	✓			
Bridge Chart (McKinsey-Style Waterfall)	✓	✓	✓			
Double Y Box Chart	✓	✓	✓			
Multi-Y Color Mapped Line Series	✓	✓	✓			
4D XYZ Surface with Custom Boundary	✓	✓	✓			
Trellis Plot with Flexible Customization Options: Wrap Panels, Overlap Panels, Add Gap Between Panels	✓	✓	✓	✓		
Line Series, Statistics Bars	✓	✓	✓	✓		
3D Stacked Bars, 100% 3D Stacked Bars with new Bar Shapes	✓	✓	✓	✓		
Interval Plot	✓	✓	✓	✓	✓	
Heat Map	✓	✓	✓	✓	✓	
Column Scatter Plot With or Without Jitter	✓	✓	✓	✓	✓	
Kernel Density Plot	✓	✓	✓	✓	✓	
Grouped Column Plots, Grouped Box Chart	✓	✓	✓	+	+	✓
Variable Column/Bar Width	✓	✓	✓	✓	✓	✓
100% Stacked Column/Bar Plots	✓	✓	✓	✓	✓	✓
3D OpenGL Waterfall	✓	✓	✓	✓	+	✓
3D Ternary Surface	✓	✓	✓	✓	✓	✓
Piper/Trilinear Diagram	✓	✓	✓	✓	✓	✓
Marginal Histogram/Box Chart	✓	✓	✓	✓	✓	✓
3D Surface/Bar Plot From Worksheet XYZ Columns	✓	✓	✓	✓	✓	✓
3D Bar Plot with Z Error Bars	✓	✓	✓	✓	✓	✓
3D Parametric Function Plot	✓	✓	✓	✓	✓	✓
Radar/Spider Chart	✓	✓	✓	✓	✓	✓
2D/3D Function Plot and 2D Parametric Function Plot	✓	✓	✓	✓	✓	✓

GRAPH TYPES (CON'T)	2019b	2019	2018*	2017	2016	9.*
Multiple Intersecting Surfaces	✓	✓	✓	✓	✓	✓
3D Vector Plot	+	✓	✓	✓	✓	✓
3D Bar Plot	✓	✓	✓	+	✓	+
Image/Contour Profile Plot	✓	✓	✓	✓	✓	✓
Scatter Matrix	✓	✓	✓	✓	+	✓
Contour Plot	✓	✓	✓	+	+	+
Basic 2D, 3D, and Statistics Graphs	✓	✓	✓	+	✓	✓

GRAPH CUSTOMIZATION	2019b	2019	2018*	2017	2016	9.*
Stack Lines by Y Offsets Supports Grouping by Label Row Data	✓					
3D Waterfall Support for Label at Specified Indices	✓					
Better Custom Legend Notation for Column Plots	✓					
Polar Line Plot Supports Data Labels	✓					
3D Vector Plot: Line Style Control, Leader Lines for Labeling	✓					
Support Remove Line Between Two Points on Line + Symbol Plots	✓					
Support Specified Color List for Color Mapping	✓					
2D Vector Plot: Support Line Style Customization, Adding Label	+	✓	✓			
Support Compound Line Style for Line Plot	✓	✓				
Support Missing Value Control for Image Plot	✓	✓				
Display the Median Value on Box Chart	✓	✓				
Support 3-Color Limited Mixing for Color Mapping	✓	✓				
Object Manager Improvements: Move Plot to Other Layer/Y Axis, Remove a Plot from a Group, Rename plot group's long name	✓	✓				
New Legend Type: Categorical Legend for 3D XYZ Bar, New Legend for Fill Area Plot	✓	✓				
Smith Chart Handles Negative Real for Z	✓	✓				
Add Independent Color Scale on Layout Window	✓	✓				
Rescale Axes to Show All Taking Care of Linked Overlapping Layers	✓	✓	✓			
Connect Control in 3D Waterfall which Enables Smooth Waterfall Lines	✓	✓	✓			
Provide Option to Put Axis Title to be in the Beginning/End of Axis	✓	✓	✓			
Support Special Point for 3D XYZ Bar Graph	✓	✓	✓			

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ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

GRAPH CUSTOMIZATION (CON'T)	2019b	2019	2018*	2017	2016	9.*
Allow Displaying Reference Lines on Top of Data	✓	✓	✓			
Total Label for 3D Stacked Column/Bar Plots	✓	✓	✓			
Create Custom Legend Entries	+	✓	✓			
Statistics Reference Lines on Graph with Full Customization	✓	+	+			
Arrows at Axis Begin or End and can be Put Outside of Layer Frame	✓	✓	✓			
Total Label on Stacked Column/Bar Chart	✓	✓	✓			
Column Gap control for Double-Y Column Plot	✓	✓	✓			
Lighting Effect for 3D Wall Plot	✓	✓	✓			
Leader Line for Pie Chart	✓	✓	✓			
Distribute Selected Layers/Graphic Objects Horizontally or Vertically	✓	✓	✓			
Symbol Size Increment For Each Plot in Group	✓	✓	✓			
Plotting Two Y columns With Numeric X Will Use Row Indexing For X Axis Labels	✓	✓	✓			
Change Light Source Direction in 3D Graph by Pressing S Key and Dragging Mouse	✓	✓	✓			
Axis Break Supports Proportional Unit for Each Segment	✓	✓	✓			
Pick Data Points from Graph	✓	✓	✓			
New Annotation Dialog with More Controls for Object Customization	✓	✓	✓	✓		
More Hatch Patterns, including Geology Patterns	✓	✓	✓	✓		
Dropline Direction Control in 2D/3D Graphs	✓	✓	✓	✓		
Support More Bar Shapes for 3D Bars	✓	✓	✓	✓		
Histograms: Label with Bin Counts, Percentage or Both	✓	✓	✓	✓		
Grouped Plots: Unbalanced Subgroups Can Display Grid Line Separators, Set Gaps by Dataset	✓	✓	✓	✓		
Support for all 2D objects in 3D graphs: Table, Image, Drawn Objects, Bubble Scale, OLE Object	✓	✓	✓	✓		
Axis Improvements: Multiple Reference Lines and Shading Between in 2D Graphs; More Rescale Options, Tick Labels Combine Column Labels, Leader Lines For Special Ticks, Wrap Tick Labels for 3D Plots	✓	✓	✓	✓		
New System Colors Give Your Graphs a Fresh Look	✓	✓	✓	✓		
Skip Weekend and Holidays in Financial Plot	✓	✓	✓	✓	✓	

GRAPH CUSTOMIZATION (CON'T)	2019b	2019	2018*	2017	2016	9.*
Text and Legend Improvements: Multi-line Spacing, Annotation Customization, Legend Text Color same as Legend Symbols	✓	✓	✓	+	✓	
Show Symbol in 3D XYY Waterfall, Walls and Ribbons	✓	✓	✓	✓	✓	
Position Label/Metadata Anywhere on Data Plot	✓	✓	✓	✓	✓	
Align Layers at Specified Value, Share Common Scale among Layers	✓	✓	✓	✓	✓	
New Tab-based Axis Dialog with Multi-axis Selection and Easy Navigation	✓	✓	✓	✓	✓	
Wrap Axis Tick Labels, Customize Individual Special Ticks, Custom Axis Scale Formula for 3D OpenGL Axis	✓	✓	✓	+	✓	
Boundary Customization in Contour Plot	✓	✓	✓	✓	✓	
More Customization of Color Scale in Contour Plot	✓	✓	✓	✓	+	
Linear and Nested Bubble Scale for Bubble Plot	✓	✓	+	✓	✓	
Drag Legend to Multiple Columns, Hide Legend of Hidden Plots, Reverse Order of Legend	✓	✓	✓	✓	✓	
Custom Percentile and Jitter Points in Box Chart	✓	✓	✓	✓	✓	
Plot: User Defined Menu to Access Customized Templates	✓	✓	✓	✓	✓	✓
Smart Labels - Auto Position of Data Labels	✓	✓	✓	✓	✓	✓
User Defined Axis Scale Type	✓	✓	✓	✓	✓	✓
Multiple Axis Breaks with No Gap	✓	✓	✓	✓	✓	✓
Multiple Special Tick Labels	✓	✓	✓	✓	✓	✓
Isometric - Link Axis Length to Scale by X/Y Ratio	✓	✓	✓	✓	+	✓
More Legend Types: Box Chart Components, Point by Point, Categorical Values	✓	✓	✓	✓	+	✓
Customized Color/Shape/Interior Increment List for Plot	✓	✓	✓	+	+	✓
3D Surface Improvements: Lighting Effect, Mesh, Flatten, Shift	✓	✓	✓	✓	✓	✓
Zoom and Pan inside Graph Layer	✓	✓	✓	✓	✓	+
Customizable Data Info. Window to Read Coordinates and More	✓	✓	✓	✓	✓	✓
Transparency and Gradient Fill Control in Graphs	+	✓	✓	✓	✓	✓
Embed and Edit Microsoft Word, Excel and Equation Objects Inside Graphs and Layouts	✓	✓	✓	✓	✓	✓
Non-Linear Z-Axis, and Y- and Z-Value Colormap Support for Waterfall Plots	✓	✓	✓	✓	✓	+
Move, Rotate, Skew and Resize 3D Graphs	✓	✓	✓	✓	✓	✓
Axis Tick Locations Controls	✓	✓	✓	+	✓	+
Box Chart with Box/Whisker/Outliers Controls	✓	+	✓	+	+	+
Fill Area Under/Between Line Plots	✓	✓	✓	✓	+	+
Polar Plot with Azimuth and Radial Axis Controzls	+	✓	✓	+	✓	+

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SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

DATA MANAGEMENT	2019b	2019	2018*	2017	2016	9.*
Support Copy/Paste of Folders and Workbooks across Origin Sessions	✓					
Exclude Imported Data when Saving Project	✓					
Filter Columns by Label Row	✓					
Support Splitting Columns by Specified Separator or Interval	✓					
Extract Worksheet Rows by Random Sample	✓					
Copy Cell(s) and Paste to a Range	✓					
Conditional Formatting: Highlight Cells by Rules, Highlight Duplicate Cells, and Heatmap	✓	✓				
Column List View for Worksheet to Display Only a Column List	+	✓				
Treat Missing Values as Blank in Worksheet	✓	✓				
Support Copy Noncontinuous Rows	✓	✓				
Copy and Paste Filter from One Column to Another	✓	✓				
Support Press Mouse Wheel in Worksheet to Scrol	✓	✓				
Auto Fill Column Label Row Contents to the Right	✓	✓				
Support copying/pasting sheet across Origin sessions	✓	✓				
Cell Formula Support for for Data and Label Row Cells	✓	✓	✓			
X-Function to Set Format of Selected Cells	✓	✓	✓			
Maximum Number of Worksheets/ MatrixSheet in Workbook/ MatrixBook Increased to 1024	✓	✓	✓			
Simpler Spreadsheet Cell Notation for Column Formulas	✓	✓	✓	✓		
Ability to Include LaTeX in Text Labels/Legends, and in Worksheet Header Rows etc.	✓	✓	✓	✓		

DATA MANAGEMENT	2019b	2019	2018*	2017	2016	9.*
Embed Layout Window in Worksheet	✓	✓	✓	✓		
Select or Hide Columns in Worksheet by Column Label	✓	✓	✓	✓	✓	
Append Worksheet tby Matched Column	✓	✓	✓	✓	✓	
Search & Insert Function and Show Function Syntax Hint in Set Column Values Dialog Box	✓	✓	✓	✓	✓	
Customize Categorical Data Order and Apply it to other Columns	✓	✓	✓	✓	✓	
Append Worksheet Row-wise or Column-wise	✓	✓	✓	✓	✓	
Generate Patterned Data	✓	✓	✓	✓	✓	✓
Sort Column by Values in Column Label Rows, Reduce Columns	✓	✓	✓	✓	✓	✓
Lock Filter Condition in those Columns Linked to Source Columns	✓	✓	✓	✓	✓	✓
Excel-Like Data Filtering	✓	✓	✓	+	✓	✓
Floating Graphs/Layout in Worksheet	✓	✓	✓	✓	✓	✓
Split a Worksheet into Multiple Worksheets by Number of Columns/Rows, or by Column Label	+	+	✓	✓	✓	✓
XYZ Gridding in Linear or Logarithmic Scale	✓	✓	✓	✓	✓	✓
Reduce XY Data by Group, Reduce Data to Evenly Spaced X	+	✓	✓	✓	✓	PRO
Reduce Each Column in Worksheet by Combining Duplicate Rows	✓	✓	✓	✓	✓	✓
Pivot Table	✓	✓	✓	✓	+	+
Stack Columns and Unstack Columns	✓	✓	✓	✓	✓	+
Reduce Duplicate X Data, Reduce Data by Skipping Every N Points	✓	✓	✓	✓	✓	✓
Worksheet Query (Extract Values from Worksheet)	+	✓	✓	✓	✓	✓

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SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

IMPORTING	2019b	2019	2018*	2017	2016	9.*
Data Connector maintain connection with web file or local file as data source (CSV, HTML, JSON, MS Excel, Origin Project and more)	✓					
ASCII and CSV Import is almost 50% Faster	✓					
Added Option for Starting New Rows when Importing Multiple Files in CSV Import	✓	✓	✓			
Set Origin as Default Program to Open Data Files	✓	✓	✓			
Import Specified Column/Rows only in Excel and CSV	✓	✓	✓			
Source File Header Row to Show Imported File Name	✓	✓	✓			
Undo Import of ASCII, Excel and CSV	✓	✓	✓			
New Excel Import Dialog without Using COM Support	+	✓	✓			
More 3rd-Party Import Formats: ISF, SAS, BRUKER OPU	✓	✓	✓	✓		
Script after Import and Column Plot Designation for More Import Routines	✓	✓	✓	✓		
Import SPSS Data Files	✓	✓	✓	✓	✓	
Importing OPJ	✓	✓	✓	✓	✓	✓
Import Mat File Structure	✓	✓	✓	+	✓	✓
Specify Channel When Import MDF, NITDM, DIADem, Prism, pClamp, Matlab Data	✓	✓	✓	✓	✓	✓
File Import Menu Customization Dialogue	✓	✓	✓	✓	✓	✓
Import TDMS 2009, MZXML and Prism Files	✓	✓	✓	✓	✓	✓
SQL Editor for Database Import	+	✓	✓	✓	✓	✓
Import Excel, Multi-Line CSV and Binary 2D Array	✓	+	+	+	+	+
3rd Party Formats Support for pCLAMP 2.0, NI DIAdem/TDM, ETAS MDF,JCAMP-DX, NetCDF, HDF5 etc.	✓	✓	+	+	✓	+
Graphically Construct SQL Queries	✓	✓	✓	✓	✓	✓
ASCII and Binary Import Wizard Provides Visual Feedback during Import	+	+	✓	✓	✓	+
Import Images (PNG, GIF, TIF, TGA, PCX, PSD, WMF ect (Convert to Raster))	✓	✓	✓	✓	✓	✓
Drag-and-Drop Data File from Windows Explorer into Origin	✓	✓	✓	✓	✓	✓
Import Wizard Filter for Repeat Import of Similar Data	✓	✓	✓	✓	✓	✓

MISCELLANEOUS	2019b	2019	2018*	2017	2016	9.*
Unicode(UTF-8) Support	✓	✓	✓			
Connection to OriginLab website using secure connection (https)	✓	✓	✓			
Zoom and Pan on Graphs, Worksheets, Matrices and Layouts	✓	✓	✓	✓	✓	✓
Native 64-Bit and 32-Bit Applications	✓	✓	✓	✓	✓	✓

EXPORTING & PRESENTATION	2019b	2019	2018*	2017	2016	9.*
Export Mulit-sheet Workbook as Excel File	✓					
Copy Graph and Paste Directly to Online Documentation Tools such as Confluence Page	✓					
Option to export multiple graphs as a single multi-page PDF file	✓	✓	✓			
Export graphs with PE folder name included in the name of the exported file	✓	✓	✓			
Copy / Export User-defined Area of Graph Page	✓	✓	✓			
Ignore Hidden Columns in ASCII Export	✓	✓	✓			
Export Graphs to Auto-Created Windows Explorer Folders that Parallel your Project File's Folder Structure	✓	✓	✓	✓		
Send Graph to PowerPoint Improvements: Specify Graph List and Order, Specify Slide Layout and Style	✓	✓	✓	✓	✓	
Creating Movies from Origin Windows using GUI Tool or Script	✓	✓	✓	✓	✓	✓
Graph Export Supports Transparency for PDF and EPS Format	✓	✓	✓	✓	✓	✓
Export All Graphs to PowerPoint	✓	✓	✓	✓	+	+
Export ASCII Data to Existing File by Appending or Replacing	✓	✓	✓	✓	✓	✓
Slide Show Graphs and Layouts	✓	✓	✓	✓	✓	✓
Export Worksheet as Image, WAV, NI TDM/TDMS File or Multi-Page PDF Document	✓	✓	✓	✓	✓	✓
Graph Export Formats Include: CGM, EPS, TIFF, PDF, JPEG, EMF, PSD, etc.	✓	✓	+	+	✓	✓
Export Image to Raster File Format	✓	✓	+	✓	✓	✓

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SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

GADGETS	2019b	2019	2018*	2017	2016	9.*
Vertical Cursor Gadget: Compare Two Cursors, Show All Info in One Label	✓					
Allow to clear category settings for some points with Cluster Gadget	✓	✓	✓			
Integrate Gadget now supports marking of Fill Area under multiple curves	✓	✓	✓			
Curve Translate Gadget	✓	✓	✓	✓	✓	
Profile Gadget	✓	✓	✓	✓	✓	
Surface Integration Gadget	PRO	PRO	PRO	PRO	PRO	PRO
Global Vertical Cursor Gadget Across Graphs	+	✓	✓	✓	✓	✓
Intersect Gadget	✓	✓	✓	✓	✓	✓
Quick Sigmoidal Fit Gadget	✓	✓	✓	✓	✓	✓
Cluster Gadget	PRO	PRO	+	PRO	+	PRO
Differentiate Gadget	✓	✓	✓	✓	✓	✓
Interpolate Gadget	✓	✓	✓	✓	✓	✓
Quick Peaks Gadget	✓	✓	✓	✓	✓	✓
Digitizer	✓	✓	✓	✓	✓	+
Quick Fit Gadget	✓	✓	✓	✓	✓	✓
Rise Time Gadget	PRO	PRO	PRO	PRO	PRO	PRO
Integrate Gadget	+	✓	+	✓	✓	✓
FFT Gadget	✓	✓	✓	✓	✓	✓
Statistics Gadget	+	✓	✓	+	✓	✓

MATHEMATICS	2019b	2019	2018*	2017	2016	9.*
Show Polygon Area of Selected Contour Line in Data Display	✓	✓	✓	✓	✓	
Akima Spline in Interpolation	✓	✓	✓	✓	✓	✓
2D Interpolation and Extrapolation	✓	✓	✓	✓	✓	✓
Compute Polygon Area	✓	✓	✓	✓	✓	✓
Compute Surface Area and Matrix Area	PRO	PRO	PRO	PRO	PRO	PRO
2D Volume Integration	PRO	PRO	PRO	PRO	PRO	PRO
3D Interpolation	✓	✓	✓	✓	✓	PRO
Trace Interpolation on XY Data	PRO	PRO	PRO	PRO	PRO	PRO
1D Interpolation and Extrapolation	✓	✓	✓	✓	✓	+
Interpolation and Extrapolation of Y From X	✓	✓	✓	✓	✓	+
Trace Interpolation on XYZ Data	✓	✓	✓	✓	✓	✓
Normalization Across Multiple Columns or Curves	✓	✓	✓	✓	✓	✓
Set Column or Matrix Values by Using Mathematics Operations	✓	✓	✓	+	+	+

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CURVE FITTING	2019b	2019	2018*	2017	2016	9.*
Include Standard error on derived parameters in the parameter Summary table	✓	✓	✓			
Add two new implicit fitting functions for diode and solar cell data	✓	✓	✓			
Support Integral in Implicit Function	✓	✓	✓			
Two buttons on Parameters tab of Nonlinear Curve Fit dialog to switch between sets of parameters to compare fitting result	✓	✓	✓	✓		
Provide selection of Parameter Initialization formula when defining fitting functions	✓	✓	✓	✓		
More Built-in Fitting Functions Such as Photosynthesis Irradiance (PI) Curve, 3D Curves etc.	✓	✓	✓	✓		
Provide Deming Method in Fit Linear with X Error	PRO	PRO	PRO	PRO	PRO	
Customize Parameter Table in Graph for LR/PR/NLFit and Peak Fitting	✓	✓	✓	✓	✓	
Zoom on Preview tab of Nonlinear Curve Fit	✓	✓	✓	✓	✓	
Improved Fitting Results: Add Normal Probability Plot of Residuals, Put Residual Plots in a Single Graph	✓	✓	✓	✓	✓	
Fit and Rank All Functions in a Category	PRO	PRO	PRO	PRO	PRO	PRO
Orthogonal Regression for Implicit/Explicit Functions	PRO	PRO	PRO	PRO	PRO	+
Calculate Standard Error for Derived Parameter	✓	✓	✓	✓	✓	✓
Linear Fit with Support for X Error	PRO	PRO	PRO	PRO	PRO	+
Surface Fit with Multiple Peaks	PRO	PRO	PRO	PRO	PRO	PRO
New Fitting Function Builder for Fitting Function Creation	✓	✓	✓	✓	✓	✓
Graphical Residual Analysis for Fitting	✓	✓	✓	✓	✓	✓
Find-X/Find-Y Tool for Linear, Polynomial, and Nonlinear Fit	✓	✓	✓	✓	✓	✓
New Find-Z Tool for Nonlinear Surface/Matrix Fit	PRO	PRO	PRO	PRO	PRO	PRO
Fitting Comparison	PRO	PRO	PRO	PRO	PRO	PRO

PEAK ANALYSIS	2019b	2019	2018*	2017	2016	9.*
Peak Analyzer: Support Output Baseline Subtracted Peaks Information after Finding Peaks, Report Baseline Mode in Notes node, Add Hint Tab in Fit Control Dialog	✓					
New method for peak detection: Fourier Self Deconvolution	✓	✓	✓			
Auto Bound Setting for Positive-Only and Negative-Only Peaks	✓	✓	✓			
Sequentially Initialize Parameter Values in Batch Peak Analysis	✓	✓	✓	✓		
Multiple Peak Fit Tool	✓	✓	✓	✓	✓	✓
Batch Peak Fitting	✓	✓	✓	+	+	PRO
Peak Analyzer: Peak Fitting	PRO	PRO	PRO	PRO	PRO	PRO
Peak Analyzer: Fit Baseline with Peaks	PRO	PRO	PRO	PRO	PRO	PRO
Peak Analyzer: Peak Integration	✓	✓	✓	✓	+	✓
Peak Analyzer: Peak Finding	✓	✓	✓	✓	+	✓
Peak Analyzer: Baseline Detection	✓	✓	✓	✓	+	✓
Peak Analyzer: Baseline Subtraction	✓	✓	✓	✓	+	✓

SIGNAL PROCESSING	2019b	2019	2018*	2017	2016	9.*
Support Binomial Filter for Smoothing	✓	✓	✓	✓	✓	
LOWESS and LOESS Smoothing	✓	✓	✓	✓	✓	✓
IIR Filter Design	PRO	PRO	PRO	PRO	PRO	PRO
2D FFT Filter	PRO	PRO	PRO	PRO	PRO	PRO
Signal Envelope	PRO	PRO	PRO	PRO	PRO	PRO
Coherence	PRO	PRO	PRO	PRO	PRO	PRO
Signal Decimation to Reduce/Resample Data	PRO	PRO	PRO	PRO	PRO	PRO
1D FFT, Inverse FFT and 1D FFT Filter	✓	✓	✓	✓	✓	✓
2D FFT and 2D Inverse FFT	PRO	PRO	PRO	PRO	PRO	PRO
Short-Time Fourier Transform (STFT)	✓	✓	+	PRO	PRO	PRO
Wavelet Analysis	PRO	PRO	PRO	PRO	PRO	PRO
Hilbert Transform	PRO	PRO	PRO	PRO	PRO	PRO
2D Correlation	PRO	PRO	PRO	PRO	PRO	PRO

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STATISTICS	2019b	2019	2018*	2017	2016	9.*
Support Censor Mark in Survival Plot	PRO					
Support Grouping for Statistics on Rows	✓	✓	✓			
Support Means Plot in Two-Way ANOVA	✓	✓	✓	✓		
3-way ANOVA	PRO	PRO	PRO	PRO	PRO	
Partial Correlation	PRO	PRO	PRO	PRO	PRO	
Cross Tabulation	PRO	PRO	PRO	PRO	PRO	
Distribution Fit	PRO	PRO	PRO	PRO	PRO	
t-Tests on Rows	PRO	PRO	PRO	PRO	PRO	
Partial Least Squares Regression	PRO	PRO	PRO	PRO	PRO	PRO
One/Two-Proportion Testing	PRO	PRO	PRO	PRO	PRO	PRO
More Power & Sample Size Tests (One/Two-Proportion, One/Two Variance)	PRO	PRO	PRO	PRO	PRO	PRO
Grubbs Test and Q-test to Detect Outliers	✓	✓	✓	✓	✓	+
Multivariate Analysis: Cluster, Principal Component, Discriminant, etc.	PRO	PRO	PRO	PRO	PRO	PRO
Multivariate Analysis: Principal Component	✓	✓	+	PRO	PRO	PRO
Multivariate Analysis: Discriminant Analysis	PRO	PRO	PRO	PRO	PRO	PRO
ROC Curve	PRO	PRO	PRO	PRO	PRO	PRO
Survival Analysis: Kaplan-Meier, Cox Proportional Hazard ,Log-Rank, etc.	PRO	PRO	PRO	PRO	PRO	+
Nonparametric Tests: Mann-Whitney Test, etc.	PRO	PRO	PRO	PRO	PRO	PRO
Power and Sample Size	PRO	PRO	PRO	PRO	PRO	+
One- and Two-Way Repeated Measures ANOVA	PRO	PRO	PRO	PRO	+	PRO
Hypothesis Testing	✓	✓	✓	✓	+	+
Correlation Coefficient	PRO	PRO	PRO	PRO	PRO	PRO
Normality Test	✓	✓	✓	✓	✓	✓
Basic Descriptive Statistics, 1D and 2D Frequency Count, Discrete Frequencies, One/Two-Way ANOVA	✓	✓	+	✓	+	✓

CONNECTIVITY WITH OTHER APPLICATIONS	2019b	2019	2018*	2017	2016	9.*
Communicate with Individual Mathematica V8 or Later	✓	✓	✓	✓		
R Console and support for Rserve to exchange data between Origin and R	✓	+	✓	✓	✓	
MATLAB Console with GUI Support to Transfer Data Between Origin and MATLAB	✓	✓	✓	✓	✓	✓
LabVIEW Connectivity	✓	✓	✓	✓	✓	✓
Automation Server Support	✓	✓	✓	✓	✓	✓

PROGRAMMING	2019b	2019	2018*	2017	2016	9.*
Multi-sheet Range Support	✓					
Provide Python Package OriginExt to Access Origin Functionality from External Python through COM	✓					
Support More LabTalk/SCV Functions	+	✓				
Provides LabTalk functions for Linear Fit	✓	✓				
Origin API for calling Origin from outside Python	✓	+	✓			
Unicode (UTF-8 Encoded) Text Strings Support in LabTalk and OriginC	✓	✓	✓			
Graph Object Properties Access From LabTalk	✓	✓	✓			
Code Builder "Find" Improvements	✓	✓	✓			
More NAG Mark 25 Functions Aaccessible from Origin C	✓	✓	✓			
Diff() Function Supports Padding at Begin and End	✓	✓	✓			
Support for HTML Dialog with JavaScript	✓	✓	✓	✓		
Origin C Access to Full NAG Mark 25 Library	✓	✓	✓	✓		
Integrate Python as a Scripting Language in Origin	✓	✓	✓	✓	✓	
Ability to Encrypt OC code	✓	✓	✓	✓	✓	
Code Builder has New Editor Based on Scintilla Code, which Supports Code Folding, etc.	✓	✓	✓	✓	✓	✓
Origin C Access to Full NAG Mark 9 Library	✓	✓	✓	✓	✓	✓
Generate LabTalk Script Command from Current Dialog Box Settings	✓	✓	✓	✓	✓	✓
X-Function: Easy Creation of Custom Tools with Automatic GUI by X-Function	✓	✓	✓	✓	✓	✓
X-Function: Execute X-Function from LabTalk Script and Menu	✓	✓	✓	✓	✓	✓
Command Window: Auto-Complete Support for Scripting	✓	✓	✓	✓	✓	✓

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