





Get to know FlexPro in just 15 minutes



Getting to Know FlexPro in just 15 Minutes

This tutorial provides you with a brief overview of the structure of FlexPro and the basic command methods. Before you start, it is <u>vital</u> that you read this first topic, since it will provide you with important information on getting started:

Managing Data with FlexPro 4

Alternative Import Options

Entering Data Manually into FlexPro 6 Importing Excel Data 8 Importing Data from Measuring Devices 11 Importing Text Data (ASCII Files) 13

Analyzing and Presenting Data

 Creating and Editing Diagrams 16

 Creating a Document 24

 Calculations in FlexPro 28

 Automatic Presentation and Calculation of Data with the Press of a Button 31

Managing Data with FlexPro



FlexPro stores all objects generated by you such as data sets, diagrams, folders, etc. in a project database that appears in FlexPro's main window. The object list shown above in the FlexPro window already contains some objects as examples. When you start FlexPro, these sample objects will not appear.

Structure of FlexPro's Main Window

Ribbon

This is where you select commands. The ribbon is divided into several tabs. Only one tab is active at a time. The example above shows the <u>Home</u> tab. You can switch tabs by clicking on the tab title. The commands are arranged in groups. Their names are below the icons. The FlexPro documentation uses the following syntax to refer to a command: Tab[Group] > Command, e.g. <u>Home[Clipboard] > Copy</u>. Some icons open menus from which you can choose an entry. This can be identified by a small arrow next to or under the icon; for instance: <u>Home[Clipboard] > Paste > Paste Special</u>.

• Quick Access Toolbar

This displays frequently used commands that you can always access without having to change tabs.

• Folders Window

This is where folders created by you are displayed. You can select one particular folder here and its content then appears in the Object List.

• Object List

For instance, if you create a new data set or a diagram, it will appear as an object in the Object List. This allows you a general view of all objects that you are working on, such as data, diagrams and formulas.

• Data Explorer

Depending on the view selected, Data Explorer displays files on your hard disk or indexed data.

• Object Hierarchy

This window presents the objects displayed in the Object List in a hierarchical structure. You can therefore simply reconstruct which objects are linked directly or indirectly with a particular object.

• Preview

In the Preview window, the content of one object in the Object List or selected in another window, such as a data set, is displayed. This provides you with an overview of the object's content without having to double-click to open it.

• Data Preview

Data Preview is an advanced preview window specifically designed for data sets. The data set just selected is displayed there as a curve. You can use data cursors to measure the data or enlarge a section.

• Properties Window

This powerful window allows you to quickly edit the properties of selected objects.

• Dynamic Help

This window offers selected topics and procedures related to the object that you are currently processing or to the window in which you are currently working. Simply click on a help topic to display it.

• Workspace

Here, the windows of open objects appear on tabs. In addition to the Object List, folders can also be opened in a window here. The above illustration shows the Data view of an open folder, which shows all data sets contained in the folder in a data grid.

Note: If necessary, you can undo any steps you make in FlexPro. Just click on the Undo/Redo icons in the Quick Access Toolbar.

The next step depends on the format of your data. Select one of the four options:

Entering Data Manually into FlexPro 6 Importing Excel Data 8 Importing Data from Measuring Devices 11 Importing Text Data (ASCII Files) 13

⊟ 5 • ∂	🗟 🍷 Project Database1 - FlexPro D	Developer Suite Data Tools								
File Ho	ne Insert Data View	Developer Design								^ ?)
Insert Data Set Element •	MV ≫V Units X _Z Component:	ax+b h insert Y Delete Calculate y Merge	Breinsert Delete Edit Go To	Width: 3.89 cm	n m Rename					
Data Set Layout	Data Set	Columns	Rows Value	View	Object					
Project Databas	e: 'Project Database1' ×						•	Data Explorer		→ ‡ ×
Data Set	Data Set2	(Unnamed)	(Unnamed)	(Unnamed)	(Unnamed)	(Unnamed)	(Unnamed) (. 4	🛛 🔒 - Q - O - O -	0	
									ro ► 2019 ► Examples ►	
0	2	5						Name	Size Type	Date modif
2	3	4						First Steps	File folder	15.02.2017
3	4	7						Measurement Series	File folder	15.02.2017
4	5	14						Video Analysis	File folder	15.02.2017
5	6	1/	Da	ta View				CreatingTemplates.FP	D 1.469 KB FlexPro Pro	15.02.2017
7								CurveFitting.FPD	141 KB FlexPro Pro	15.02.2017
8		2						Examples.FPD	861 KB FlexPro Pro	15.02.2017
9		_						Filter.FPD	85 KB FlexPro Pro	15.02.2017
10								OrderTracking.FPD	1.365 KB FlexPro Pro	15.02.2017
11								Series Analysis.FPD	1.149 KB FlexPro Pro	15.02.2017
13								SPC.FPD	509 KB FlexPro Pro	15.02.2017
14								SpectralAnalysis.FPD	349 KB FlexPro Pro	15.02.2017
15								4		- F
16								Properties		▼ [↓] ×
17										0
19								ZU 🖓 🕅 😿 Search		2
20								 Data set 		A
21								Name	Data Set2	
22								Category	Terre	
23								Write protosted	False	
25								Creation date	17.02 2017 14-50-45	5
26								Hyperlink	11.02.2011 14.30.43	·
4							Þ	Locked	False	
H 4 F H L	st Data							Y comment		
								Y unit		
Folders	* 4	X × Object List					- ų	Y data unit		
📔 (No activate	d subfolder) 🛛 👻 😂	Mame Name	Comments	Type	Changed on Cont	ents		🖌 Properties 📔 Object	Hierarchy 🔸 Data Preview	w
Project Datal	oase: 'Project Database]'	🔶 Data Set 🛛 🚞		Data Set	17.02.2017 14:50:41 Data	series with 6 64-bit floating	point values	Praviaw		- 1 ×
	1	◆ Data Set2	Created da	ita sets	17.02.2017 14:51:16 Data	ject List	point values		10 ⁹⁴	* + ^
Ready								0	+	+

Entering Data Manually into FlexPro

Double-click on the root folder shown in the first row in the Folders window to open it [1].

Enter the first two columns of the numerical values shown above in Data View [2]. FlexPro automatically creates the two objects <u>DataSet</u> and <u>DataSet2</u>, which appear in the Object List.

B	5-∂}-						Project Database1 - Flo	exPro Developer Suite	e				-	□ ×
File	Home Insert	Data \	view Develo	oper 🛇										^ 😮
Paste	Cut E Copy Transfer Format	Import	Find Edit	update Update Fo	Cancel Ca	Save As Template	Change Units Convert Into Formul Convert Into Data Si Selected Obie	t ⊡t Down	Read-Only Locked	(De)activate Folder	read Open 호 Rename C Follow H	vperlink Object		
Projec	t Database: 'Project Da	tabase1' ×					541444 0 0 0 0				-	Data Explorer		→ ₽ ×
Da	ata Set	Data Set2	(Unnamed)	(Unnamed)	(Unnamed)	(Unname	i) (l	Unnamed)	(Unnamed)	(. 🔺	3 - Q - O - O -	0 ⊪ - ∎ Φ	
												Weisang ► FlexPr	o + 2019 + Examples +	
1		2	4.5									Name ^	Size Type	Date modif
2		3	4									First Steps	File folder	15.02.2017
3		4	7									Measurement Series	File folder	15.02.2017
5		6	14									Video Analysis	File folder	15.02.2017
6												CreatingTemplates.FPI	D 1.469 KB FlexPro Pro	15.02.2017
7												Examples.EPD	861 KB FlexPro Pro	15.02.2017
8												Filter.FPD	85 KB FlexPro Pro	15.02.2017
10												OrderTracking.FPD	1.365 KB FlexPro Pro	15.02.2017
11												Series Analysis.FPD	1.149 KB FlexPro Pro	15.02.2017
12												SPC.FPD	509 KB FlexPro Pro	15.02.2017
13												SpectralAnalysis.FPD	349 KB FlexPro Pro	15.02.2017
15												4		F
16												Properties		- A ×
17														
19												ZU 🖓 🕅 🕅 Search		P
20												 Data set 		A
21												Name	Data Set2	
22												Open	True	
25												Write-protected	False	
25												Creation date	17.02.2017 14:50:45	
26											.	Hyperlink		
4											Þ	Locked	False	
le e	▶ H List Data											Y comment		
Folders			× - C	biect List							▼ # ×	Yunit		-
5-1 IN	lo activated subfolder)			Jame	Comments	Troe	Changed on	Contents				✤ Properties 2 Object	Hierarchy 🛛 🔩 Data Previev	v
E Pro	iect Database: 'Project	Database1'		Data Set	comments	Data S	Set 17.02.2017.14	50:41 Data series	s with 6.64-hit fl	loating point values		Preview		▼ # ×
				Data Set2)	Data S	Set 17.02.2017 14	:51:16 Data serie:	s with 6 64-bit fl	loating point values		2 4 Preview Opnanic b	telp Coordinates	
Ready														+ +

To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2].

<u>Caution</u>: The following examples in this tutorial are based on imported data. Please select one of the alternative import methods that you want to use:

Importing Excel Data

Importing Data from Measuring Devices 11 Importing Text Data (ASCII Files) 13

Importing Excel Data

≣ち-∂≧= _1		Project Database1 - FlexPro Developer Suite		፹ - □ ×
File Home Insert Data View Devel	oper 🛇 Tell me what you want to do			Style * ?
Channel selection: Binary Text ODBC Data Data Data Source Import from Files and Databases Unport from Files and Databases	omplete Time: Relative Units: er file Data structure: Signals Analysis templa opy Write protected No Import Settings	te None Data ASAM Epiorer OOS Other Data Sources Export	Data Exolorer	* # ×
	2		<u>s</u> • 0 • 0 • Ø	⊞ - ⊞ Ø
imports an exter me.			Weisang + FlexPro +	2019 Examples
			Name	Size Type Date mo
			Fint Steps Messureme Vide Analysis CreatingTe Lacket Constraints Converting Table Constraints Converting Table Constraints Series Analy Sec APP Sec	Dateiordner 18.01.2 DATE Star Deteordner 18.01.2 Districture 50.22 Star Fledro Projekt 90.01.2 97 K8 Fledro Projekt 90.01.2
Folders	104		به مر الله المراجع الم	archy 🔌 Data Preview
1 (No activated subfolder)	✓ Comments Type	Changed on Contents	Preview	- I X
Project Database: 'Project Database !'	act life Different Los Co Watch		Nothing	g selected.
	00		Contenent Contenent	

Click on the <u>Data</u> tab of the ribbon [1] and in the group called <u>Import Settings</u> set the options as shown in the picture [2]. Click [Import from Files and Databases] > Excel File [3].

+ Import									×
← → × ↑ 📙 « Weisang	> FlexPro > 2019 >	Exam	ples → First Step	s > Exceldata	```	 	eldata		P
Organize 🔻 New folder				_			885 ·	•	?
Examples		^	Name	1		Date modif	ied	Туре	
First Steps			Measurer	ment Tixls	-	09.01.2019	13:43	Microsoft	t Excel
Exceldata			🖻 Measurer	ment 2.xls		09.01.2019	13:43	Microsoft	t Excel
Instrumentat	ion data								
Textdata									
Measurement	Series								
Video Analysis									
HistoryBase									
Public Downloads									
		~	<)
Channel selection:	Complete	~	Time:	Relative	~	Units:	Check all		\sim
Subfolder:	Per file	~	Data structure:	Signals	~	Analysis template:	None		\sim
Data:	Сору	~	Write protected:	No	~	Data range:	All Data		~
File name:	Measurement 1.xls				_	V Excel Files	(Wizard) (*.xls;*.xlsx;*	• ~
					2	Oper	1	Cancel	

The <u>Import</u> dialog box opens. Switch to the folder C:\Users\Public\Documents\Weisang\FlexPro\<% VERSION_COMMERCIAL%> or C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>. From there, switch to the subfolder Examples\Data\First Steps\Excel data and select Measurement 1.xls[1]. Click Open [2].

iele	ct saved import s	cheme			File Path				
(N	lo template)				C:\Use	rs\Public\Do	cuments\Weisang\Fle	Measurem	ent 1.
Data	a Storage								
She	eet:	Measure	ement 1		 Orientation: 	Re	ead data sets by colur	m	
Data	a Range								
							ſ	1	
onte	nt: 1(X)	_	2(Y)	M	3(Y)	V	Columns 4(Y)	1 i found:	4
onte	nt: 1(X) Time	8	2 (Y) Utrasound Signal	V	3(Y) Voltage	V	Columns 4 (Y) Current 23	1 s found: mA	4
nte 1 2 3	nt: 1 (X) Time 0 0 0009157509	8	2 (Y) Utrasound Signal 0.012 0.013	V	3(Y) Voltage 0 004	V	Columns 4 (Y) Current 33 33 185	1 s found: mA	4
onte 1 2 3 4	nt: 1 (X) Time 0 0,0009157509 0,0018315018	S	2 (Y) Utrasound Signal 0,012 0,013 0,01	V	3 (Y) Voltage 0 0.004 0.008	V	Columns 4 (Y) Current 33 33,185 33,371	1 s found: mA	4
1 2 3 4 5	nt: 1 (X) Time 0 0,0009157509 0,0018315018 0,0027472527	8	2(Y) Utrasound Signal 0.012 0.013 0.01 0.007	V	3 (Y) Voltage 0 0.004 0.008 0.012	V	Columns 4 (Y) Current 33 33,185 33,371 33,556	1 ; found: mA	4
1 2 3 4 5 6	nt: 1 (X) Time 0 0,0009157509 0,0018315018 0,0027472527 0,003650037	S	2(Y) Utrasound Signal 0.012 0.013 0.01 0.007 0.002	V	3 (Y) Voltage 0 0.004 0.008 0.012 0.015	V	Columns 4 (Y) Current 33 33,185 33,371 33,556 33,741	1 found: mA	4
1 2 3 4 5 6 7	nt: 1 (X) Time 0 0,0009157509 0,0018315018 0,0027472527 0,0036530037 0,0045787545	S	2(Y) Utrasound Signal 0.012 0.013 0.001 0.007 0.002 0	V	3 (Y) Voltage 0 0.004 0.008 0.012 0.016 0.021	V	Columns 4 (Y) Current 33 33,185 33,371 33,556 33,741 33,926	1 : found: mA	4
0nte 1 2 3 4 5 6 7 8	nt: Time 0.009157509 0.0018315018 0.0027472527 0.0045787546 0.0054345055	S	2(Y) Utrasound Signal 0.012 0.013 0.001 0.0007 0.002 0 -0.004	V	3 (Y) Votage 0 0.004 0.008 0.012 0.016 0.021 0.025	V	Columns 4 (Y) Current 33 33,185 33,371 33,556 33,741 33,926 34,112	1 : found: mA	4
0nte 1 2 3 4 5 6 7 8 9	nt: 1 (X) Time 0 0,0009157509 0,0018315018 0,00247472527 0,0036530037 0,0045787546 0,005445055 0,0064102564	8	2 (Y) Utrasound Signal 0.012 0.013 0.01 0.007 0.0002 0 -0.004 -0.005	V	3 (Y) Voltage 0 0,004 0,008 0,012 0,016 0,021 0,025 0,029	V	Columns 4 (Y) Current 33, 185 33, 371 33, 556 33, 741 33, 926 34, 112 34, 297	1 mA	4
onte 1 2 3 4 5 6 7 8 9 10	nt: 1 (X) Tme 0 0.000157509 0.001315018 0.002472527 0.003630037 0.0045787546 0.0054945055 0.0064102564 0.0073260073	\$	2(Y) Utrasound Signal 0.012 0.013 0.007 0.002 0 0.002 0 0.004 -0.004 -0.004	v	3(Y) Voltage 0 0,004 0,002 0,015 0,025 0,029 0,033	V	Columna 4 (Y) Current 33 33,185 33,371 33,556 33,741 33,926 34,112 34,297 34,482	1 found: mA	4
1 2 3 4 5 6 7 8 9 10 11	nt: 1 (X) Time 0 0.0009157509 0.001315018 0.0027472527 0.00454757546 0.0054445055 0.0064102564 0.0073260073 0.0082417582	S	2(Y) Utrasound Signal 0.012 0.013 0.01 0.007 0.002 0 0.002 0 0.004 0.005 -0.004 0	v	3 (Y) Votage 0 0.004 0.012 0.016 0.021 0.025 0.029 0.029 0.029 0.033	v	Columna 33 33,185 33,371 35,566 33,741 33,926 34,112 34,297 34,482 34,667	1 s found: mA	4

FlexPro automatically recognizes the current data set structure. You can verify this by looking at the value displayed for <u>Columns found [1]</u>. Click <u>Finish [2]</u>.

Note: When you import your own data, you may have to configure the settings on the next pages of the wizard so that the data is interpreted correctly. You can save all settings made in the wizard to quickly import data with the same data structure in the future. To do this, select the <u>Save import schema</u> option on the last page of the wizard.

eck for issues su antity, if applica	uch as upper and ble.	lower case sp	elling of the units	anyway, and enter a	description for the	e physica	I
elect an action:	E	dit units			\sim		
mported Unit ✓V ✓s ✓mA	Recognized volt second milliampere	As	Replace With V s mA	Interpreted As volt second milliampere	Physical Quar	ntity	

In the <u>Verify Units</u> dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2]. Next: <u>Creating and Editing Diagrams</u> 16.

Importing Data from Measuring Devices

≣ 5· ở ╠ ፣ 1	1	Project Database1 - FlexPro Developer	Suite	☶ _	□ ×
File Home Insert Data View	Developer 📿 Tell me what you want to do				ityle • 😨
Einary Text ODBC Data Excel Data Source File Import 3 and Databases	lection: Complete Time: Relative Per file Data structure: Signals Copy Write protected: No Import Settin	Units: Check All Analysis template: None	Data ASAM Export Polorer 005 Other Data Sources Export		
Import (Strg+I)		2		Data Explorer	* 4 ×
Imports data from files of		_		<u></u> <u></u> <u></u>	
applications.				≪ Weisang → FlexPro → 2019 → Examples →	
				Partie ▲ Suc Uppe First Steps File folder Measurement Series File folder Wide Analysis File folder CreatingTemplates 1.469 Bamples.FPD 141.K8 Bitter FPD 141.K8 DorderTracking.FPD 4.077 Series Analysis.FPD 51.K8 Filer.Properties 59C.FPD SpectralAnalysis.FPD 349.K8 Filer.Properties 54.100.000000000000000000000000000000000	Ale modul 18.01.2019 18.01.2019 18.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 √ ♥ × ✓ ♥ × ✓
				& Properties 😤 Object Hierarchy 💰 Data Preview	
Folders v J	A X Object List		₩ ₩ ×	La colection of Data Heriew	
(No activated subfolder) visual Detelores	Name Comments	lype Changed on Co	ntents	Preview	▼ 4 ×
rujet bildbitet	Chief Life Develop 72 Work			Nating selected.	
Ready	- object the Green toy watch			Gigeordinates	801

Click on the <u>Data</u> tab on the ribbon [1] and in the <u>Import Settings</u> group select the options as shown in the picture [2]. Click on <u>[Import from Files and Databases] > Binary Data [3]</u>.

🐥 Import											×
← → × ↑ 📙 « FlexPro	> 2019 > Examples > F	irst	Steps > Instrum	entation data		~	С	Search Inst	trumentati	on data	P
Organize 🔻 New folder									822	-	?
2019		^	Name	^				Date modifi	ed	Туре	
Examples			Measurer	nent 1.DDF				09.01.2019 1	3:43	DDF File	
First Steps			Measurer	nent 2.DDF				09.01.2019 1	3:43	DDF File	
Exceldata					1						
📙 Instrumentat	ion data				_						
Textdata											
Measurement	Series										
Video Analysis											
HistoryBase											
Public Downloads											
Public Music											
Public Pictures			<						_		3
Channel selection:	Complete ~		Time:	Relative	~	-		Units:	Check all		~
Subfolder	Per file $$		Data structure:	Signals	~	, Ar	nalys	s template:	None		~
Data:	Сору ~		Write protected:	No	~			Data range:	All Data		~
File name:	Measurement 1.DDF						~	All Files (*	.*)		\sim
						2	Ì	Oper	1	Cancel	

The Import dialog box opens.

Switch to the folder C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL%> or C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>. From there, switch to the subfolder Examples\Data\First Steps and select Measurement 1.DDF [1]. Click Open [2].

Note: If you expand the <u>File Type</u> list, all available import options will appear.

Verify Units						?	×
FlexPro did not fin Check for issues su quantity, if applica	d any unknow uch as upper ble.	n units in the o and lower case	data sets to be impo e spelling of the units	rted. anyway, and enter a	a description f	or the physica	al
Select an action:		Edit units			\sim		
Imported Unit V S MA	Recogni volt second milliampe	zed As re	Replace With V s mA	Interpreted As volt second milliampere	Physical Time	Quantity	
Open Custom U	nits Table	Save changes In this datab	s: Nase		~ V	Clos	se

In the <u>Verify Units</u> dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2]. Next: <u>Creating and Editing Diagrams</u> [16].

Importing Text Data

≣5·∂}•		Pro	ect Database1	- FlexPro Developer S	uite				· -	□ ×
File Home Insert Data 4	eloper 🛛 Tell me what you									Style - ?
Einary Text Data Data Import from Piles and Databases	n: Complete • Time: Per file • Data structur Copy • Write protect	e: Signals	Check All e: None	*	Data ASAM Explorer ODS	Export Export				
Import Text Data Activates the Text Data Import Waard, whine you can use to import data from different text HES.		2						Data Explorer C C + C + C + FlexP Name G C Veising > FlexP Name G C Asting FPD C Creating Femplates C CurveFitting.FPD Fitter.FPD Order Tracking.FPD Seties Analysis.FPD SpectralAnalysis.FPD	BEE • ■ ● 5029 ▶ Examples > 5020 Tipe File folder File folder File folder File folder File folder 141 KB Files/Pro Projekt. 8 85 KB Flee/Pro Projekt. 8 807 KB Flee/Pro Projekt. 9 707 KB Flee/Pro Projekt. 9 49 KB Flee/Pro Projekt. 9	Date modif 18.01.2019 18.01.2019 18.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019
								I Properties		م به بر م
Folders 👻 म 🗙	Object List						* # ×	Properties Cobject	Hierarchy 🔥 Data Preview	v
Project Database: "Project Database1"	Name	Comments	Туре	Changed on	Contents			Preview	lothing selected.	₩ Ψ X
	Object List 🕕 Event Log	Watch						Preview 😯 Dynamic	Help Coordinates	

Click on the <u>Data</u> tab of the ribbon [1] and in the group called <u>Import Settings</u> set the options as shown in the picture [2]. Click [Import from Files and Databases] > Text Data [3].

🔸 Import											×
← → × ↑ 📙 « Weisang	> FlexPro > 2019 > Er	am	ples > First Step	s > Textdat	a	~	Ö	Search Tex	tdata		P
Organize 🔻 New folder									811 1	-	()
2019		^	Name	^				Date modifi	ed	Туре	
Examples			📄 Measurer	nent 1.txt 👡				09.01.2019 1	3:43	Text Do	cument
First Steps			🗎 Measurer	nent 2.txt				09.01.2019 1	3:43	Text Do	cument
Exceldata					1						
Instrumentat	ion data				_						
📙 Textdata											
- Measurement	Series										
Video Analysis											
HistoryBase											
Public Downloads											
Public Music											
Public Pictures		~	<								3
Channel selection:	Complete ~		Time:	Relative	`	~		Units:	Check all		\sim
Subfolder:	Per file \vee		Data structure:	Signals	×	~ /	Analys	is template:	None		\sim
Data:	Сору ~		Write protected:	No	```	~		Data range:	All Data		\sim
File name:	Measurement 1.txt						~	Text Files	(Wizard) ('	:*)	~
						2	2	Oper	1	Cano	el

The <u>Import</u> dialog box opens. Switch to the folder C:\Users\Public\Documents\Weisang\FlexPro\<% VERSION_COMMERCIAL%> or C:>Users>Public>Public Documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>. From there, switch to the subfolder Examples\Data\First Steps\Text data and select Measurement 1.txt[1]. Click <u>Open [2]</u>.

nplate)								
				✓ C:\Users\Pu	blic\Docume	nts\Weisang\Fle\	Measurement	t 1.5
a Storage								
er encoding:	1252 (Al	NSI - Latin I)		 Orientation: 	Read d	ata sets by column		
r								
delimiter:	Tab			~		one delimiter per co	lumn	
e mbel	Doint			~	,			
symbol:	Poinc							
ige								
nge from line	2	to (End o	f file)			ſ	1	
						Columns for	and: 4	
X)		2(Y)		3(Y)		4(Y)		
e	s	Ultrasound Signal	V	Voltage	V	Current	mA	
000000000		0.012		0.000		33.000		
009157509		0.013		0.004		33.185		
018315018		0.010		0.008		33.371		
)27472527		0.007		0.012		33.556		
036630037		0.002		0.016		33.741		
045787546		-0.000		0.021		33.926		
054945055		-0.004		0.025		34.112		
064102564		-0.005		0.029		34.297		
073260073		-0.004		0.033		34.482		
082417582		0.000		0.037		34.667		
091575092		0.003		0.041		34.852		
1007220001		0.000		0.045		25.027		
	r encoding: r symbol: ge ge from line K) 000000000 000157509 11315018 127472527 136530037 45787546 454945055 464945055 464102564 464102564 464102564 164102565 164102565 164102565 164102565 164102565 164102565 164102562 1824175822	r encoding: 1252 (Al delimiter: Tab delimiter: Tab yendbil Point ge ge ge ge ge fon line 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	r encoding: 1252 (AVS1 - Latin J) r selemiter: Tab ymbol: Point ge ge from line 2 to (End or 0000000 0 012 0012 0012 0012 0012 0012	r encoding: 1252 (AVS1 - Latin I) r selemiter: Tab symbol: Point ge ge from line 2 to (End of file) () 2 (Y) b 2 (Y) b 2 (Y) c 2	r encoding: 1252 (ANSI-Latint) ✓ Orientation: Palemiter: Tab ✓ pelmiter: Tab ✓ get from line 2 to (End of file) () 2 (Y) 3 (Y) composition of the second Signal V Vetage () 2 (Y) 3 (Y) composition of the second Signal V Vetage 00000000 0 0172 0000 0017200 00000 00172 00000 00172 0000 00172 0000 00172 0000 00172 0000 00172 0000 00172 0000 0000 00172 0000 0000 00172 0000 000	r encoding: 1252 (ANSI-Latin 1) ✓ Orientation: Read d Pelemiter: Tab ✓ Confermation: Read d get ge from line 2 to (End of file) () 2(Y) 3(Y) (Confermation) () 2(Y) (C	r encoding: 1252 (ANSI -Latin)	r encoîng: 1252 (AKSI-Latin) v orientation: Read data sets by column Pelimiter: Tab v original v

FlexPro automatically recognizes the current data set structure. You can verify this by looking at the value displayed for <u>Columns found [1]</u>. Click <u>Finish [2]</u>.

Note: When you import your own data, you may have to configure the settings on the next pages of the wizard so that the data is interpreted correctly. You can save all settings made in the wizard to quickly import data with the same data structure in the future. To do this, select the <u>Save import schema</u> option on the last page of the wizard.

erify Units						?	×
lexPro did not find Check for issues su Juantity, if applical	d any unknov ich as upper ble.	n units in the d and lower case	ata sets to be impor spelling of the units	ted. anyway, and enter a	description f	for the physica	al I
Select an action:		Edit units			\sim		
Imported Unit V V s MA	Recogni volt second milliampe	zed As	Replace With V s mA	Interpreted As volt second milliampere	Physica	I Quantity	
Open Custom U	nits Table	Save changes In this databa	: ase		~ J	Clos	se

In the <u>Verify Units</u> dialog box, FlexPro displays all imported unit symbols.

The column Interpreted as shows that all units were imported correctly.

Close the dialog box.



To check the data, you can select a data set in the Object List [1] and view its content as a curve in the Preview [2]. Next: <u>Creating and Editing Diagrams</u> 16.

Creating and Editing Diagrams

File Home Insert Data View Develo	oper .3 III me what do you want to do	Project Database1 - FlexPro	Developer Suite			- □ × ^?
Folders Containers	ne • Area • III Color Field Matrix • 🗣 Space Curve • es 4 10 Jagrams •	Table Table Tables	I Media Text → Formula Data Other Data	Analysis Wizard * Analysis * Analysis *	Filter Curve Statistics Counting Acou Fitting Procedures Acou Analyses	J Istics
Sen P	Lune Lune			Dation of the second se	a Explorer ,	
<u> 197</u>	Line Diagram Witzard			ان بې م	perties Search Data set Category Open False Write-protected False Write-protected False Creation date IS:02:2017 1 Hyperlink	3:47:05
Folders V 0 X Project Database: Project Database 1 Measurement 1 Measurement 1	Object List Name Comments Messurement 1 Uttrasound Signal Current 1	Type Changed on Folder 17.02.2017 162 Data Set 17.02.2017 162 Data Set 17.02.2017 162	Contents 7/13 3 object(z); No value 7/13 Signal with 4,578 64-bit floating poir 7/13 Signal with 4,578 64-bit floating poir Signal with 4,578 64-bit floating poir	t points [V, s] t points [V, s] t points [mA, s]	V comment Properties Coded Hierarchy Coded Hierarchy Coded Hierarchy Coded Hierarchy Coded Hierarchy Coded Hierarchy Coded Hierarchy Coded Preview Opamic Help Coordinat	

Use your left mouse button to select the data set <u>Voltage [1]</u>. Next, click on the <u>Insert</u> tab of the ribbon [2]. Open the <u>Line</u> [3] menu and select <u>Lines [4]</u>.

Note: If necessary, you can undo any steps you make in FlexPro. Just click on the <u>Undo/Redo</u> Symbols on the Quick Access Toolbar.



The new diagram is inserted into the Object List [1] and is opened in the workspace [2]. Click [Cursors] > On/Off to activate the data cursors [3].

Using Cursors to Measure Data Sets



Move your mouse pointer to the left Y axis where one of two cursors is located. A horizontal double arrow appears. Hold the left mouse button down and move the cursor to the right [1]. The current values for the positions of the cursors are displayed in the Coordinates window [2].

Spreading the Curve in a Diagram



Clicking on the <u>Spread [1]</u> icon enlarges the signal section between the cursors. Use the scrollbar [2] to move the stretched data set within the diagram.

The <u>Restore Image Section [3]</u> icon allows you to undo all zoom operations in one step.



Switch off the cursors using [Cursors] > On/Off in order to edit the diagram.



With one click of the left mouse button on the curve of the diagram, this curve can be selected for editing [1]. Using the Line Color [2] menu, you can now change the color of the curve, for instance.

🔚 🕤 - 🏕 🗟 = Project Database1 - FlexPro Develo	per Suite 2D Diagram Tools Drawing Tools						E -	□ ×
File Home Insert Data View Dev	eloper Design Format (Style • 😨
• •	Width * ▲ Color * Dashes * Transparency: 0% ± ⊗ Style * Transparency: Unes	- East Width: I Height: Angle: Fill Measures	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Edit Shape Pick Attributes Cut Tools	Edit Duplicate Connect Edit	Bring Forward - Align - Send Backward - El Group - Add to Header - Align Rotate - Arrange Data Explorer		* ± ×
						≪ Weisang ► FlexPro ►	2019 • Examples •	
		Properties Curve 1 General Data Arts Connection Line Symbols Error Indiators Column;@ars Fill Data Labeling Aris Labeling Curve Labeling Legend	Connection line on Type Straight line Straight line Color Style Fixed color Color Line style: Line style: Automatic Line style: Automatic v	Y Arrow type: Y Transparency: Y	0%	? X 3	ize type File folder File folder File folder III folder III Folder File folder File folder FilesPor Projekt & FilesPor Projekt & FilesPor Projekt & FilesPor Projekt & FilesPor Projekt True 1 True 1 True 1	Date modif 18.01.2019 18.01.2019 18.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019
Folders + 4 ×	Object List				OK	Cancel Apply	chy 🔩 Data Preview	
Project Database!'	Comment 1 Comment 1 Ultracound Signal Voltage Current 2 2D Diagram	ppe Chan Folder 18.0 Data Set 18.0 Data Set 18.0 Data Set 18.0 2D Diagram 18.0	Lonems Sobject(s); No vs J.2019 12:00:53 Signal with 4,578 J.2019 12:34:01 Voltage <td>llue 64-bit floating point point 64-bit floating point point 64-bit floating point point</td> <td>is [V, s] is [V, s] is [mA, s]</td> <td>b Preview @ Dynamic Help</td> <td>5 4.19139</td> <td>* * *</td>	llue 64-bit floating point point 64-bit floating point point 64-bit floating point point	is [V, s] is [V, s] is [mA, s]	b Preview @ Dynamic Help	5 4.19139	* * *
Click and drag the mouse to select shapes.							5.1° x 4°	

Double-clicking with the left mouse button on the selected curve [1] opens the Properties dialog box for the curve. This is where all options for changing this curve are displayed. Now close the Properties dialog box by clicking on <u>Cancel [2]</u>.

Note: Double-clicking on any element (axes, scaling, etc.) opens the respective Properties dialog box automatically and allows you to work with the element.

Creating a New Y Axis



Click on the scaling of the Y axis using the left mouse button. The numerical values appear highlighted [1].

Move your mouse pointer to one number on the Y axis. For example, click on the number <u>0.4</u> and hold down the left mouse button. Now also press the CTRL key. The mouse pointer now displays an additional + sign. Move the mouse pointer to the white space to the right of the diagram [2]. Now release the mouse button [3]. A new axis is added at the selected position. In the next step, a data set will be scaled over this new axis.



Adding a Second Data Set to the Diagram and Scaling Over the New Axis

In the Object List, click on the data set called Current. Press and hold down the left mouse button [1].

Move your mouse pointer to the new axis [2]. Release the mouse button [3]. The <u>Current</u> data set appears in the diagram and is automatically scaled over the new axis.

Note: If the object in which you want to insert an element via drag-and-drop is located on a tab in the background and is therefore not visible, move your mouse pointer to the tab of the target object and wait a moment. FlexPro will then bring the window to the foreground.

H ↔ ↔ B = Project Databasel - Fiedro Developer Suite 🖽 - □	⊐ ×						
File Home Inset Data View Developer Q Tell me what you want to do Sty	tyle • 🕐						
Folder Excel Document Worksheet Millioner Analysis Space Space <td< td=""><td></td></td<>							
20 Dagram x	₩ [‡] ×						
8 • D. • • • Ø Ⅲ • ⊞ Φ							
K Weisang > FlexPro > 2019 + Examples >							
Name State Type Datem 1 12 1 0 1 0 0 0 0 0 0 0 0 0 1 12 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 100 0 0 0 0 100 0 0 0 0 0 100 0 0 0 0 0 100 0 0 0 0 0 100 0 0 0 0 0 0 100 0 0 0 0 0 0 0 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
-0.8	 ↓ ↓						
Name Current	_						
Category Category Open False With-protected False Creation date 180.12019 09:11:13 Hyperink							
Folders + 9 x Object List + 0 x Deject List + 0 x Deject List + 0 bject List							
Measurement 1 - Di Com Mane Comments Type Changed on Contents Preview	* † ×						
Project Database!" Measurement 1 Folder 18:07:2019 12:051 3 object(b): No value Utasound Signal Data Set 18:07:2019 12:053 Signal with 4,578 64-bit floating point points [V, s] Current Data Set 18:07:2019 12:053 Signal with 4,578 64-bit floating point points [V, s] Data Set 18:07:2019 12:053 Signal with 4,578 64-bit floating point points [V, s] Diagram 2D Diagram 18:07:2019 12:47:53 Voltage, Current Voltage, Current Voltage, Signal with 4,578 64-bit floating point points [V, s] 0 voltage Voltage Voltage Voltage Voltage, Current Voltage, Current Voltage, Current Voltage Voltage Voltage, Signal Vitage, Signal							
Peadu Beadu							

This is how your diagram now looks with two data sets and two Y axes. Now close the diagram by clicking on the <u>Close</u> icon in the window tab.

Note: Click the <u>2D Diagram</u> object in the Object List. Now you can copy this diagram to the clipboard or use drag-and-drop to copy it into a Word document, for example.

Next: <u>Creating a Document</u> 24¹.

Creating a Document

The Document

A document is the equivalent of a piece of paper on which you can place diagrams, text and tables and then print it out.

Creating a Document

≣∽♂₿፣		Project Database1 - FlexPro	Developer Suit	e			E	• ×
File Home Insert Data View Dev	reloper 🛇 Tell me what you want to do							Style • 🕐
Folder Excel	(Line * Area * III Color Field Matrix * 💝 Space Curve * Column * 🍚 Polar * 🖉 Surface * 🛟 Bubble * • Bar * 🥥 Pie * Contour * More Diagrams *	Table Wizard * Tobler	Media	π ↔ Signal * Formula Data set ↓ ↓ Excel Data	Analysis Wizard • Analysis • Analysis	ral Filter Curve Statistics	Counting Acoustics Procedures *	
Poiders Containers	Diagrams	IdDies	Other	Data		Analyses Data Explorer		- I - X
Insert Document							a 🖦 🖷 💩	* 7 ^
Inserts a new document.						Gr Weisang b FlexPro	 2019 b Examples b 	
						Name A	Size Type	Date modif
						First Steps	File folder	18.01.2019
						Measurement Series	File folder	18.01.2019
						Video Analysis	File folder	18.01.2019
						CreatingTemplates	1.469 FlexPro Projekt	. 09.01.2019
						CurveFitting.FPD	141 KB FlexPro Projekt	. 09.01.2019
						Eilter FPD	85 KB FlexPro Projekt	09.01.2019
						OrderTracking.FPD	4.077 FlexPro Projekt	. 09.01.2019
						Series Analysis.FPD	997 KB FlexPro Projekt	. 09.01.2019
						SPC.FPD	577 KB FlexPro Projekt	. 09.01.2019
						SpectralAnalysis.FPD	349 KB FlexPro Projekt	. 09.01.2019
						4		Þ
						Properties		▼ ₽ ×
						21 🌫 🔜 Search		P
						✓ Data set		
						Name	Current	
						Category		
						Open	False	
						Write-protected	False	_
						Hyperlink	10.01.2019 09:11:13	
Folders 👻 म 🗙	Object List				▼ ∓ ×	& Properties BObject H	lierarchy 🔸 Data Preview	v
📑 Measurement 1 🔹 😪 🚔	Name Comments	Type Chang	ged on	Contents		Preview		▼ ₽ ×
Project Database: 'Project Database1'	Measurement 1	Folder 18.01.	2019 12:00:51	3 object(s); No value		63 A	0 0 0 0	
Measurement 1		Data Set 18.01.	2019 12:00:53	Signal with 4,578 64-bit floating	point points [V, s]	1	AAAL	
	Voltage	Data Set 18.01.	2019 12:00:53	Signal with 4,578 64-bit floating p	point points [V, s]		A A A A A	
	2D Diagram	2D Diagram 18.01.	2019 12:00:53	Voltage, Current	soint points [mA, s]	mA	MMM'	
						3		
	Object List Event Log Watch				4	Preview 😧 Dynamic He	alp Coordinates	
Ready								1

Click on the <u>Insert[Containers] > Document</u> to create a blank document.

Displaying a Diagram in a Document



Select the appropriate diagram, in this case <u>2D Diagram</u>, from the Object List [1]. Next, drag this diagram to the document by holding down the left mouse button and placing it where you want it to be located [2]. After releasing the button on your mouse, the diagram is displayed in the document [3].

Note: In this case, a link to the diagram located in the Object List is inserted into the document. You can see this as a link icon, which appears on the mouse pointer. To insert a standalone copy of the diagram into the document, you have to hold down the CTRL key and mouse button at the same time.

Inserting a Row of Text into a Document

Click <u>Design[Illustrations] > Label [1]</u> and then move the mouse pointer to the location where you want the label in the document [2]. Click to open the <u>Edit Text</u> dialog box.

🔒 🕤 - 🏕 🗟 = Project Database1 - FlexPro Developer Suite 🛛 Docum	nent Tools				至 _ □ ×
File Home Insert Data View Developer De	sign 🗘 Tell me what you want to do				Style 🔹 ?
Insert Occument Element * Document Layout Cursors Page Section	Different First Page	Label	Pick Attributes Selection Q Zoom Tools Provide Attributes Show Grid Show Grid S	Save As Template Dbject	
Document x			v	Data Explorer	
				🔒 · 💁 · 🗿 · 🖉	⊞ • 🖩 Φ
				≪ Weisang ► FlexPro ►	2019 Examples
		Edit Text		? × ⁵	File folder 18.01.2019
		Font: Font: Two Sine Font: Tot: Coutine Format: Fo	B I x [*] x, (1) 2 [*] · Δ · 6 7 0 2 Waves 3 3 4 Color(20) 6 5 5 1 1 6	(a) 15 Fields - 465 41 61 85 077 777 49 155 155 155 155 155 155 155 15	Hie folder 18.01.2019 File folder 18.01.2019 Im Floder 18.01.2019 Im Floder 18.01.2019 Im Floder 19.01.2019 KB FloderPorjekt 09.01.2019 KB FloderPorpickt 09.01.2019 Cocument P P True P P
			1	OK Cancel	18.01.2019 12:50:02
Folder				Properties 🖁 Object Hierar	rchy 🔸 Data Preview
Measurement 1	Comments Type	Changed on Conte	ents	Preview	* # X
Project Database: Project Database? Measurement 1 Voltageu 2 D Diagram D Document	nt 1 Folde nd Signal Data S Data S 20 Div Docur	ler 18.01.2019 12:00:51 3 obje s Set 18.01.2019 12:00:53 Signal s Set 18.01.2019 12:00:53 Signal s Set 18.01.2019 12:00:53 Signal s Set 18.01.2019 12:05:35 Signal Diagram 18.01.2019 12:55:12 Voltag umment 18.01.2019 12:51:50 Signal	utif; No value utvih 4,578 64-bit floating point points [V, s] utvih 45,783 64-bit floating point points [V, s] utvih 4,578 64-bit floating point points [mA, s] ge, Current		
Ready Beady	🔁 Event Log 🐺 Watch			Preview Oynamic Help	Coordinates

Now enter the appropriate text [3], select font size 20 [4], headinng level 1 [3] and click OK [4]. The text will then appear in the document.

🔚 🕤 ፣ 💣 🗟 ፣ Project Database1 - FlexPro Develo	per Suite Document Tools							Ξ -	□ ×
File Home Insert Data View Deve	loper Design								Style 🔹 😨
Insert Document Liement ▼	ew Page Orientation Siz	Different First Page Ze Different Odd & Even Pages	Pictures Shap	A Date	Number	 Show Grid ✓ Snap to Grid ✓ Use Alignment Guid 	Save As Template		
Document Layout Cursors Page Section	Page Setup	Fs Header	Illustrat	ions Fiel	ds Tools	Drawing Tools	G Object		
Document ×						Ψ	Data Explorer		
							💁 - 🙆 - 🗿 - 💿	· Ø III • III •	
		1 Two Sine Waves					Weisang ► FlexF	Pro 🕨 2019 🕨 Examples 🕨	_
							Name 🔺	Size Type	Date modif
							First Steps Measurement Series Video Analysis CurveFitting:FPD Example:FPD Fittle:FPD Ordef Tracking:FPD Sec:FAP Sec:Analysis Poperties \$↓ DP Doc Search Name Category Open	File folder File folder File folder File folder File folder 141 KB FlexPro Projekt 85 KB FlexPro Projekt 85 KB FlexPro Projekt 977 KB FlexPro Projekt 349 KB FlexPro Projekt	18.01.2019 18.01.2019 18.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019
							Write-protected	False	
							Creation date Hyperlink	18.01.2019 12:50:02	
Folders a X	Object List					- a x	& Properties	t Hierarchy 🛛 🔩 Data Preview	· ·
Measurement 1	Name	Comments	Type	Changed on	Contents		Preview		▼ ₽ ×
Project Database: 'Project Database1'	Measurement 1		Folder	18.01.2019 12:00:51	3 object(s); No value		177		
Messurement 1			Data Set Data Set Data Set 2D Diagram Document	18.01.2019 12:00:53 18.01.2019 12:00:53 18.01.2019 12:00:53 18.01.2019 12:00:53 18.01.2019 12:50:12 18.01.2019 12:55:36	Signal with 4,578 64-bit floating point Signal with 4,578 64-bit floating point Signal with 4,578 64-bit floating point Voltage, Current	points [V, s] points [V, s] points [mA, s]			
	Object List 🕕 Event Log	Watch				,	Preview 😧 Dynamic	Help Coordinates	
Ready						1	X: -4.13" Y: 0.2"	48%	+ .d

The inserted text can now be moved with the mouse.

Now close the document.

Note: If you activate the cursor using the <u>Document Tools[Cursors] > On/Off</u> icon and click on the diagram in the document, all of the cursor options become available to you in the document. You can also create multi-page documents.

Next: <u>Calculations in FlexPro</u> 28¹.

Calculations in FlexPro

≣େ∵୯ଌେ		Project Database1 - FlexPro Developer Suite	2	×
File Home Insert Data View	Developer Q Tell me what you want to do		Styl	le • ?
Folder Excel Workbook	W Line * ▲ Area * Ⅲ Color Field Matrix * ♥ Space Curve Ⅲ Column * ● Polar * ● Surface * \$ Bubble * ■ Bar * ● Pie * 圖 Contour * More Diagrams	Table III Cell Table · II Media Table · III Media Data	Signal - Data Query Image: Construction of the construct	
Folders Containers	Diagrams	Tables Other Data	Cepstrum	- II V
			- 🖩 🔅 • Examples •	* # X
			Family of Acceleration Hyperbolae	ate modif 8 01 2010
			File Folder	8.01.2019 8.01.2019 8.01.2019
			Harmonic Estima Insert Fourier Spectrum Inserts a new Fourier spectrum.	0.01.2019 0.01.2019 0.01.2019
			FlexPro Projekt 0 FlexPro Projekt 0	9.01.2019 9.01.2019
			Lillin, Order Tracking FlexPro Projekt 0 FlexPro Projekt 0	9.01.2019 9.01.2019
			Juton Shock Response Spectrum	9.01.2019
			JJ Spectral Estimator	
			Litt. Split Orders	• 4 ×
			Ime-Frequency Spectrum	ې ا
			Uneven Data Fourier Spectrum trasound Signal	
			Open False	
			Creation date 18.01.2019 09:11:13	
			Hyperlink	
Folders 👻	4 × Object List		👻 🕂 🗴 🥍 Properties 🛛 🔁 Object Hierarchy 🛛 🔩 Data Preview	
📑 Measurement 1 - 😪	Mame noments	Type Changed on Contents	Preview	₹ ₽ ×
Project Database: 'Project Database1'	Measurement 1	Folder 18.01.2019 12:00:51 3 object(s); No val	lue 0.241	
Measurement 1	Ultrasound Signal	Data Set 18.01.2019 12:00:53 Signal with 4,578 6	54-bit floating point points [V, s]	
	Voltage	Data Set 18.01.2019 12:00:53 Signal with 4,578 6	64-bit floating point points [V, s]	
	Current	Data Set 18.01.2019 12:00:53 Signal with 4,578 6	54-bit floating point points (mA, s)	
	Document	Document 18.01.2019 12:55:36		
			-0.22	
	Object List Event Log Watch		Preview @ Dynamic Help, El Coordinates	
Ready			C	1

Select the data set in the Object List called <u>Ultrasound Signal [1]</u>. In the Preview you can see the shape of the signal.

Next, from the <u>Insert[Analyses] > Spectral Analysis [2]</u> menu select <u>Fourier Spectrum [3]</u>. FlexPro now creates an analysis object for calculating the Fourier spectrum.

Fourier Spectral Analysis	Ultrasound SignalSpectrum' Properties			?	×
General	Spectral Procedure				
Parameters Calculations	Fourier spectrum for uniform data Periodogram	0	O Multitaper spectrum Peak-hold spectrum		
Formatting	Spectrum Type				
Data	O Amplitude O	Variance	O Third octaves (sums)		
Options	O RMS amplitude	Magnitude ²	 Third octaves (RMS) 		
Results	Anglitude ¹ dit, Reference: 1 0 0 dit, Reference: 1 0	Magnitude Phase Phase unwrapped Complex Real component Imaginary component Third octaves (mean value	Ortrid octaves (popare sum) Octaves (mean values) Octaves (Rum) Octaves (RVR) Octaves (RVR) Octaves (RvRs) octaves (square sums) ent n values)		
	Adjustment: 2 Parameters FFT length: data length	vv-2 • • • • • • • • • • • • • • • • • • •	Anjarwee	Ŭ	
			OK Cancel	Ap	ply

In the <u>Properties</u> dialog box, which is now opened, leave all settings unchanged and exit by clicking <u>OK</u>. The spectral analysis is performed for this example using the default settings in the dialog box.

⊟ 5·∂₿:		Project Database1 - FlexPro Developer	uite	Ē _ □ :	×
File Home Insert Data View Dev	reloper 🛛 🖓 Tell me what you want to do			Style *	•
Folders Folders Folders	(Line * ▲ Area * III Color Field Matrix * ♥ Space Curve * Line Uble * Diagrams *	Table Cell Table Cell Table Tables Other	a Formula Data ↓ Data Query ↓ Data Quer	Spectral Analysis - Fitter Curve Statistics Counting Acoustics Analysis - Fitting - Procedures - + +	
2				Data Explorer	×
	splines			Notesting Productor Productor <t< td=""><td>2019 2019 2019 2019 2019 2019 2019 2019</td></t<>	2019 2019 2019 2019 2019 2019 2019 2019
\$	χ Line Diagram Wizard			دا Properties → ۹	×
				21 20 1001 Search , Analysis object Fourier Spectrum Name Ultrasound SignalSpectrum Category Open False Write-protected False Creation date Tals/2019 12:59:55 Hyperlink 101-2019 12:59:55	
Folders 👻 म 🗙	Object List			▼ ₽ × Properties 📔 Object Hierarchy 🔬 Data Preview	
Messurement 1 · · · · · · · · · · · · · · · · · ·	Name Comments Messurement 1 Utrassound Signal Voltage Current 2 D Diagram Document Mit Utrassound SignalSpectru	Type Changed on Folder 18.01.2019 12.005 Data Set 18.01.2019 12.005 Data Set 18.01.2019 12.005 Data Set 18.01.2019 12.005 Data Set 18.01.2019 12.005 Dolar Set 18.01.2019 12.005 Dolarent 18.01.2019 12.555 Fourier Spe 18.01.2019 12.555	Contents 3 object(s): No value Signal with 4,578 64-bit floating point points [V, s] 3 Signal with 4,578 64-bit floating point points [V, s] 3 Signal with 4,578 64-bit floating point points [mA, s] 4 Voltage, Current 5 5 5 5 5 5 5 5 5 5 5 5 5	Preview • 0	×
Ready	Object List 🕕 Event Log 🐺 Watch			Preview Ø Dynamic Help	

In the Object List, the analysis object is displayed with the name <u>Ultrasound SignalSpectrum [1]</u>. This represents the spectral analysis of the ultrasound signal and can be used like a data set. To display this calculated spectrum in a diagram, select <u>Insert[Diagram] > Line > Lines [2]</u>.



The new diagram with the spectral analysis is then displayed in a new window. Now close the diagram.

Note: You can also set up your own calculations as FlexPro formulas. Wizards are available to assist you with this process.

Next: Automatic Presentation and Calculation of Data with the Press of a Button 31.

Automatic Presentation and Calculation of Data with the Press of a Button

🖬 🦘 - ờ 🗟 = Project Database1 - FlexPro Develo	per Suite Document Tools							E	□ ×
File Home Insert Data View De	eloper Design								Style • ?
Insert Document Element ▼ On/Off Element ▼ On/Off Element ▼	New Page Orientation S Margins	ize Different Odd & Even Pages	Pictures Shap	A Date	Number	Show Grid Snap to Grid Use Alignment Guid	Save As Template		
Document Layout Cursors Page Section	n Page Setup	rs Header	Illustrati	ons Field	ds Tools	Drawing Tools	😼 Object		
Document2 ×						Ψ.	Data Explorer		* ÷ ×
							💁 - 💁 - 😋 - 👄	· Ø 🖩 • 🖩 🌣	
							Keisang 🕨 FlexF	Pro + 2019 + Examples +	
							Name 🔺	Size Type	Date modif
							First Steps	File folder	18.01.2019
							Measurement Series	File folder	18.01.2019
							Video Analysis	1 460 ElevDre Dreiekt	18.01.2019
							CurveFitting.FPD	141 KB FlexPro Projekt	09.01.2019
							Examples.FPD	861 KB FlexPro Projekt	09.01.2019
							Filter.FPD	85 KB FlexPro Projekt	09.01.2019
							OrderTracking.FPD	4.077 FlexPro Projekt	09.01.2019
							Series Analysis.FPD	997 KB FlexPro Projekt	09.01.2019
							SPC.FPD	577 KB FlexPro Projekt	09.01.2019
							SpectralAnalysis.FPD	349 KB FlexPro Projekt	09.01.2019
							4		
							Properties		₩ Ĥ ×
							🛃 🐎 戻 🛛 Search		Q
							 A Document 		
							Name	Document2	
							Category		
							Open	True	
							Write-protected	False	
							Creation date	18.01.2019 13:01:54	
Folders - B V	Object List					- A Y	Properties 28 Object	t Hierarchy 🛛 🔩 Data Preview	T
Measurement 1	Name	Comments	Type	Changed on	Contents		Preview		× ₽ ×
Project Database: 'Project Database1'	Voltage		Data Set	18.01.2019 12:00:53	Signal with 4.578 64-bit floating point	nt points (V. s)	-		
Measurement 1	+ Current		Data Set	18.01.2019 12:00:53	Signal with 4,578 64-bit floating point	nt points [mA, s]			
	🔐 2D Diagram		2D Diagram	18.01.2019 12:50:12	Voltage, Current				
	Document		Document	18.01.2019 12:55:36					
	1 Ultrasound SignalSpectru		Fourier Spe	18.01.2019 12:59:59	Signal with 2,290 64-bit floating point	nt points [dB, Hz]			
	2D Diagram2		2D Diagram	18.01.2019 13:01:15	'Ultrasound SignalSpectrum'				
	i vocument2		Document	18.01.2019 13:01:54		T			
	Object List Object List	vi Watch				Þ		Halp Coordinater	
	- Object List Use New Log	66 (1000)						melp millionaries	
Ready							Ξ X: -8.86" Y: 0.4"	48%	- +

Create a new document by clicking on <u>Insert[Containers] > Document</u>.

≣େଟେଟ୍ଢିବ		Project Database1 - FlexPro De	Developer Suite		⊞ - □ ×
File Home Insert Data Y	fiew Developer 🛇 Tell me what you want to do				Style * ?
Folder Excel Workbook Folders Containers	∭ Line * ▲ Area * III Color Field Matrix * Space Curve Diagram ↓ Colum * @ Folar * Ø Starke * It bubble * Wizard * ■ Bar * Ø Fiel * © Contour * More Diagrams Diagrams Diagrams Diagrams Diagrams	Table Wizard Tables	Media Text • Other Data Media Tormula Set • Data Mexel Data Data Mexel Data	Analysis Vitzard* Analysis * Analysis * Analysis * Analysis	istics Counting Acoustics Procedures
Document2 ×				→ Data Explorer	▼ ₽ ×
				🤹 · [à, · @ · ()· 🖉 🎫 🖷 🕸
				🧧 « Weisang 🕨 Fl	exPro > 2019 > Examples >
	3 + Ultrasoun Spin B) a		Name First Steps Measurement Serie Carverfitting FPD Curverfitting FPD Curverfitting FPD Stets Analysis.FPD Stets Analysis.FPD Stets Analysis.FPD Corter Tracking FPA	▲ Size Type Date mod File folder 180.720 141 K8 FilePor Projett 090.720 141 K8 FilePor Projett 090.720 651 K8 FilePor Projett 090.720 4077 FilePor Porjett 090.720 977 K8 FilePor Projett 090.720 577 K8 FilePor Projett 090.720 340 K8 FilePor Projett 090.720
				Object Hierardy ■ Project Database a) Document ■ 2 Document a) 20 Document a) 20 Document a) 20 Diagram2	Project Database1
<u> </u>				Preview	* 4 ×
Folders	▼ # × Object List	-		▼ ₽ ×	
Project Database: 'Project Database1' Messurement 1	Ball Main Name Comments Macaurement 1 Uttracound Signal Voltage Current 2D Diagram Document Document Macaurement If an non-management Macaurement	Type Changed Folder 18.01.201 Data Set 18.01.201 Data Set 18.01.201 Data Set 18.01.201 Data Set 18.01.201 Dota Set 18.01.201 Document 18.01.201 Fourier Spe 18.01.201 Document 18.01.201	don Contents 19 12:00:51 3 object(s); No value 1912:00:35 Signal with 4,578 64-bit floating 1912:05:35 Signal with 2,290 64-bit floating 1912:25:36 Signal with 2,290 64-bit floating 1912:25:36 Signal with 2,290 64-bit floating	point points [V, s] point points [V, s] point points [MA, s] point points (dB, Hz]	2 0 5 4.19139
Paadu	Object List 1 Event Log Watch			Preview Oppnar	All Coordinates
Ready				Ell X: 11.02" Y: 11.61"	40%

Select the data set in the Object List called <u>Ultrasound Signal [1]</u>. Drag this data set to the document by holding down the left mouse button [2] and placing it where you want it to be located. After releasing the mouse button, the data set is displayed in the document [3].

Note: You can drag a data set directly into a document without creating a diagram first. If you do this, a diagram is automatically created within the document.

日 ら・ご ほ ・ Project Database1 - FilePro Developer Suite								⊞ -	□ ×
File Home Insert Data	View Developer 🖓								Style • 🕐
Folders Folders	et Diagram Wizard ▼ Bar ▼ ∅	Area + III Color Field Matrix + ♀ Space Cur Polar + ❷ Surface + ■ Bubble + Pie + ■ Contour + More Diagram Diagrams	s • Table Wizard • Tables	Media Text • Other	Formula Set + Data Data	Analysis Wizard •	al Filter Curve Statistics Fitting Analyses	Counting Acoustics Procedures *	
Document2 ×						Ψ.	Data Explorer		▼ 4 ×
							💁 • 🖸 • 🗿 • 💿 •	C 💷 · 🖩 🕈	
							🧧 « Weisang 🕨 FlexPro	▶ 2019 ▶ Examples ▶	
			3 m ²				Hane ▲ First Steps Wdesurement Series Video Analysis Creating Templates CurveFitting.FPD Stamplet.FPD OrderTracking.FPD SPC:FPD SpectralAnalysis.FPD Poperties 2 ↓ ⇒ 反 Search A 20 diagram Name Category Open Withe-protected	Size Type Size Type File folder File folder STKS File folder File folder File folder File folder File folder File folder File folder File folder File folder	Date modif 18.01.2019 18.01.2019 18.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 09.01.2019 10.01.2019
<u> </u>		~					Hyperlink	liararchy 🦛 Data Pravia	-
Folders						▼ ₽ ×	- riopenes (gobjett)	Data Preview	
Measurement 1	 Set Set Mame Name 	Comments	Type Chang	red on	Contents	noint points IV sl	Preview		* 4 ×
Project Uatabase! 'Project Uatabase!' Measurement 1	Volta 2 D Diag Documy C D Diag Documy D Documy Vitasoo D Documy	yram gram gram gram gram eni2	Data Set 18.01. Data Set 18.01. 2D Diagram 18.01. Document 18.01. Fourier Spe 18.01. 2D Diagram 18.01. Document 18.01. Document 18.01.	2019 12:00:53 2019 12:00:53 2019 12:50:12 2019 12:55:36 2019 12:59:59 2019 13:01:15 2019 13:04:23	signal with 4,278 64-bit floating j Signal with 4,578 64-bit floating j Voltage, Current Signal with 2,290 64-bit floating j 'Ultrasound SignalSpectrum'	point points [v, s] point points [mA, s] point points [dB, Hz]		un de la la construction de la construcción de la construcción de la construcción de la construcción de la cons Construcción de la construcción de la	
-	🛁 Object Li	ist 1 Event Log 🔛 Watch					Preview 😵 Dynamic H	elp Coordinates	
Ready							X: -8.86" Y: 0.4"	48%	- + .a

Now select the diagram called <u>2D Diagram2 [1]</u> with the spectral analysis and place this diagram within the document by selecting the diagram in the Object List with your left mouse button and, while holding the mouse button down, drag the diagram to the desired location in the document [2] and drop it there [3].

日 ち・さ B・ Project Database1 - File/Pio Developer Suite								□ ×
File Home Insert Data View Deve	eloper 🛇 Tell me what you want to do							Style 🔹 🕐
Folder Excel Workbook Folders Containers	Line * ▲ Area * III Color Field Matrix * ♀ Space Curve * Colum * ♀ Polar * ❷ Surface * ✿ Bubble * Bar * ● Pier * ❷ Contour * More Diagrams *	Column Table *	Media	Formula Set - Data Data Data Data	Analysis Wizard * Signal Analysis * Analysis *	Filter Curve Statistics P Analyses	Counting Acoustics	
Document2 ×					Ŧ	Data Explorer		
						💁 - 🗅 - 🗿 - 🗇 - 😥	9 ⊞ - 🖩 🌣	
						🧧 « Weisang 🕨 FlexPro	▶ 2019 ▶ Examples ▶	
						Name First Steps Measurement Series Urdeo Analysis Creating Fempletz L Curvefitting.FPD Creating Fempletz L Curvefitting.FPD Corder/Tracking.FPD Gorder/Tracking.FPD SPC-FPD SPC	Size Type File folder File folder File folder File folder File folder File folder File folder Start Herbro Projekt. St KB Fledro Projekt. St KB Fledr	Date mo 180.120 180.121 180.122 090.120 1100 1100 1100 1100 1100 1100 1100 1100 1100 1100 <
Folders 👻 🕂 🗙	Object List				* # ×	Preview		≜ ń ×
🧊 Measurement 1 🔹 😂 🚔	Name Comments	Type Change	ed on	Contents				
Project Database: Project Database1' Measurement 1		Data Set 18.01.2 Data Set 18.01.2 2D Diagram 18.01.2 Document 18.01.2 Fourier Spe 18.01.2 D Diagram 18.01.2 D Diagram 18.01.2 D Diagram 18.01.2 Document 18.01.2	1019 12:00:53 1019 12:00:53 1019 12:50:12 1019 12:55:36 1019 12:59:59 1019 13:01:15 1019 13:06:38	Signal with 4,578 64-bit floating p Signal with 4,578 64-bit floating p Voltage, Current Signal with 2,290 64-bit floating p 'Ultrasound SignalSpectrum'	point points [V, s] point points [mA, s] point points [dB, Hz]	Nath	ing selected.	
	Object List 🕕 Event Log					Preview 😮 Dynamic Hel	p Coordinates	
Ready						X: -2.76" Y: 11.61"	48%	+

You now have a finished document with the ultrasound signal and the spectral analysis of this signal from <u>Measurement</u> <u>1</u>.

All objects from which you have assembled your evaluation form a dynamic network, which is displayed in the <u>Object</u> <u>Hierarchy</u> window. You can thus use the evaluation directly as a template for evaluating additional measurements. Import the file Measurement 2 from the data folder.

You can find information on the relevant import options under:

- Importing Excel Data 8
- Importing Data from Measuring Devices 11
- Importing Text Data (ASCII Files) 13

In FlexPro, a second folder called <u>Measurement 2</u> is now created and activated (distinguished by the red folder icon) [1]. The content of the active folder is displayed [2] and all open windows are updated, since the option <u>Home[Update] ></u> <u>Automatic</u> is selected [3].



Note: You can switch between the individual measurements at any time by selecting the appropriate subfolder from the <u>Activate or deactivate subfolder</u> list box at the top of the <u>Folder [4]</u>. FlexPro updates all windows automatically as long as the option <u>Automatic Update</u> is selected. Otherwise, you can also carry out the update manually using the <u>Update All</u> command [5].

If you want to, you can now try out other options available in FlexPro. Here are a few suggestions:

- Double-click on the object <u>UltrasoundSignalSpectrum</u> and convert the spectral format from dB to amplitude.
- Create statistics for measured data and display these as a table within the document.
- Export the complete analysis as an HTML web page.
- Record a few command steps as a macro.
- Create a formula for calculating data sets.

Search the Online Help for the relevant Help topics.

The FlexPro setup includes additional sample project databases covering a wide range of topics.

The examples can be found in the folder C:\Users\Public\Documents\Weisang\FlexPro\<%VERSION_COMMERCIAL% >\Examples or C:>User>Public>Public documents>Weisang>FlexPro><%VERSION_COMMERCIAL%>>Examples.

Topics covered include:

- Presentation examples
- Analysis examples
- Examples of measurement series analyses
- Data query and document collection
- FPScript examples
- Order tracking examples
- Other examples (SPC, roundness, etc.)



The company and product names listed here are registered trademarks of the respective companies. FlexPro is protected by international copyright law. Copyright © 1991 – 2021 Weisang GmbH. Portions Copyright © 1996 Microsoft Corporation. Dated 7/2/2021, subject to errors and changes.