## ProfiGraph User Manual



## Version (Software and Manual) V. 2.12

ProfiGraph is like a virtual oscilloscope; you can inspect in graphical way the data exchanged between PROFIBUS devices and the diagnostic response of the slaves. In simple way, without to interfere with your PROFIBUS installation, it can visualize the incoming data from a remote unit or analyze the timing of the telegrams on the bus.

ProfiGraph relies on ProfiTrace Analyser to obtain data in real-time from a PROFIBUS network.

ProfiGraph can be run locally or remotely through a network, since it uses an efficient TCP connection with the computer running ProfiTrace.

ProfiGraph has a simple and intuitive interface and has two operating modes.

- The "Data Time Analyzer" mode shows in graphical way the process data.
- The "Bus Timing" mode shows in graphical way the telegrams on the bus.

Pressing the button statistics, it visualize the distribution, the mean, the minimum, the maximum, the standard deviation of the cycle time of PROFIBUS telegrams (Data Exchange, Token Pass) or digital signals.

Technical data:

Number of Channels: 8 Telegrams/Channel: 60000 Trigger: Set level, positive slope, negative slope, Transition faster than Interval Width, Trig.1 and (Trig.2 Inside Interval), Trig.1 and (Trig.2 Outside Interval), Trig.1 or Trig.2. Wait for ProfiCore Trigger Manual

Continuous Viewing : Continuous Scrolling mode or Repeated acquisition mode

ProfiGraph saves the graphical screen in bitmap format (.bmp) and exports data into compatible text file (.csv).

ProfiGraph, in Offline Mode, can be use to analyze ProfiTrace Data Files (.ptd) in graphical way.

ProfiGraph is compatible with ProfiCore + ProfiTrace 1.62 and with ProfiCore Ultra + ProfiTrace 2.0.3 or higher.

# Installation and start up

### **Plugin Installation**

- 1. Check the ProfiTrace directory (usually C:\Program\ProfiTrace\_V1\_6\_2\ or C:\Program\ProfiTrace\_V2\_1\_1\).
- 2. Copy the ProfiGraph license file "ProfiGraph\_xxxx.pld" into the **app** directory (usually C:\Program\ProfiTrace\_Vx\_x\_x\app).
- 3. Run ProfiTrace.
- 4. Select from the Setting menu, plugins.

Load data Save Data it ProfiCore Dose ProfiC System activity: Live list: to Panel	File viewer Jetup re are PA Prot vitordet Message recording	cord trigge and message record ect bourdrat 3 et loaudrate : X Record to file : X	rdir op message recordir ;	Set record filter	wifite	aud		
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- 5. Press **Install plugin**. Select the plugin "**plg\_profigraph\_profilogger.dll**" from the directory C:\Program\ProfiTrace\_Vx\_x\_x\plg.
- 6. After the installation, select **Enables**.
- 7. Press Close.
- 8. From the menu Setting->Preferences->General select "Automatically enable on Startup"
- 9. Close ProfiTrace.

After completing the installation, you can run **ProfiTrace** to verify that the installation process has completed successfully:

- 1. Run ProfiTrace
- 2. Press Init Proficore
- 3. Select from the Setting menu, plugins.
- 4. Check the plugin version. Select the "General Info" Tab.
- 5. Press General Setup and check if the TCP server is running. "TCP Server status: Run"



6. Minimize, without closing, ProfiTrace and run **ProfiGraph**. Check the version. Click on the ProfiGraph icon in the title bar and press "About:".



#### Attention!

- ProfiTrace must be at least Version 1.6.2 or higher.
- For to activate the offline functionality, you must use one time the program online with ProfiCore.
- If a plugin is to be updated (using this 'Install Plugin' button) then please restart ProfiTrace with the left CTRL key held down during startup.
   A window will be shown indicating no plugins will be loaded. After restarting, the plugin should be active.

## **TCP** setting

ProfiTrace and ProfiGraph running on the same computer.

The Server Name must be localhost.



Attention! If you change the Port number, you must restart ProfiTrace.

📴 ProfiTrace V1.6.2 (c) 2004-2006 PROCENTEC ProfiCore Ser.Nr: xxxx1937		_ & ×
File Action Filter Trigger Toolbars View Settings Hillp		
Load data Seve Data File viewer ietup record triggi art message recordir op message recordir Set record filter Set view filte		
nit ProfiCore Dose ProfiCore PA Prof. wto-detect boudred Set boudrate 12 Maps		
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Into Panel Live Ist III Messages X Messages (with view filter applied) Station statistics view IP Data inspection		
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General msg. info 🔽 Enabled Setup Development tool: Microsoft visual C++ V5.0		
Plugin API version : V1.0	08	
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Close instan page		

To check the Port number go ProfiTrace-> Setting->plugins and press General Setup

ProfiTrace and ProfiGraph running on separate computers connected in a network.

Insert the IP address of the computer where ProfiTrace is running.



#### Attention! Check your Firewall setting.

In order to use the program you need to ensure that your firewall or security utility are set to allow ProfiGraph and ProfiTrace.

## **Operating modes**

- "Data - Time Analyzer" mode.

🇱 ProfiGraph - Recording Start T	ime: Fri Sep 28	13:45:14 2007								_ & ×
Delete Trace Position		X: 3643.169	Y: -1.06				Y->Avg: 0.00	min: -1.08	Max: 1.11	
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Save Screen										
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12 Mboud Start Telegrams Start Client connected to: VENTURINI	Ch 5 🔽 🥵 Ch 6 🔽 🥵 Ch 6 🖓 😭	СН 5 СН 5	6	Analog Input		int16				CH 4 CH 5 CH 6
	Ch 8 💌 🧖	CH 8	6	Digital Output 💌 0	1	3				CH 8
	Load	Save					OK Cancel			
	0.000	38	99.692	7799.3	34	11699.07	6 15598.7	69	19498.461	
						ms				

The "Data - Time Analyzer" mode shows in graphical way the process data.



## - "Bus Timing" mode.

The "Bus Timing" mode shows in graphical way the time position and duration of telegrams on the bus.

# **Description of menu buttons**

## Channel Setting "Data - Time Analyzer" mode

Channel Set	tting										×
Enable	Name	Profibu Addres	s Signal Type s	Start byte	Bit		Data Type	(Off+l C	Data∨a )ff	alue*Factor) Factor	Unit
Ch 1 🔽 🞽	CH 1	6	Digital Input 💌	0	0	•					
Ch 2 🔽 🞽	CH 2	6	Digital Output 🛛 💌	0	1	•					
Ch 3 🔽 🞽	сн з	6	Digital Output 💌	0	0	•					
Ch 4 🔽 🞽	CH 4	6	Analog/Gen. Input 🛛 💌	1			int16		)	0.001	
Ch 5 🔽 🞽	CH 5	6	Digital Input 🔹	0	1	•					
Ch 6 🔽 🞽	CH 6	6	Analog/Gen. Input 🛛 💌	1			int16		)	0.001	
Ch 7 🥅 🞽	¢	0	Digital Input 🔹	0	0	•					
Ch 8 🔽 🞽	СН 8	6	Digital Output	0	1	•					
Import	.pti file Se	el all DP	add. to: Std. Diag.	Wizard	1	E	xt. Diag. Wizard	1			
								-		O	<
Los	ad	Save									
Setting/	Profile Set	tfing/Pro	ofile							Can	cel

#### - Enable

Enables/Disables the channel.

#### - Name

Can be used to better describe the visualized channel.

#### - Profibus Address

The Profibus address of the slave device.

#### - Signal Type

Type of the signal in the device. Possible Signal Types are:

Digital Input
Digital Output
Analog/Generic Input
Analog/Generic Output
Slave Diag. (bit)
Slave Diag. (data bytes)

#### - Start Byte

Selects, inside the Profibus data message, the start position of the data that to be visualized.

#### - Data Type

Selects the numeric format which has to be used. Possible data types are:

Int8
Int16
Int32
Unsign.8 (bin.B)
Unsign.16 (bin.W)
Unsign.32
Float
Int16_intel
Int32_intel
Unsign.16_intel
Unsign.32_intel
Float_Intel
AI/AO Val+Status (PA V3.0)
DI/DO Val+Status (PA V3.0)

The Unsign.8 (bin.B) and Unsign.16 (bin.W) show in the Info Panel the binary value of the data. Useful for Status Byte or Status Word.

#### - (Off+DataValue\*Factor)

A formula can be used in order to scale the data value.

#### - Unit

It can be used to better indicate the unit of the visualized data.

#### Button "Import .pti files"

It can be used to read a ProfiTrace "Data Inspection" file for to import the settings.

#### Button "Set all DP add. To:"

Useful if you change the address of a slave of if you have to check more slave of the same type

#### **Wizard Buttons**

They help you to fill the setting form.

#### Import Hardware configuration

It can be used to read a SIEMENS Step 7 hardware configuration file. The Step 7 hardware configuration file must be exported to a file. In Step 7 open HW Config and select **Station->Export**. Press Browse and select the directory C:\Program\ProfiTrace\_V1\_6\_2\ProfiGraph\HW\_Configuration. Insert the file name. Select Option "Export symbols" and Format "Readable", and press Save.



Import Hard	ware Configuration from	? ×
Cerca <u>i</u> n:	🔁 HW_Configuration 💽 🔶 🖆 🏢 🗸	
i simatic 30 i simatic 30	0(1).cfg 0(2).cfg	
<u>N</u> ome file:	[Cfg	<u>A</u> pri
<u>T</u> ipo file:	Hardware Configuration File (*.cfg)	Annulla

#### Select the cfg file.



#### Select the module and press OK.

Enable	Name	Profibus Signal Type Address	Start byte	Bit	Data Type	(Off+Data Off	aValue*Factor) Factor	Unit
Ch 1 🔽 💋		3 Analog Output	0		int8	• 0	1	•

Check the data Start byte, Data type and insert the name of the channel.

## Channel Setting "Bus Timing" mode

Bus Settin	g		×
Enable	Name	Profibus Address [*]=All	Туре
🔽 Ch 1	🖆 Diag. Req.	6	Diagnostic Request to Slave
🔽 Ch 2	🖆 Diag. Resp	6	Diagnostic Response (Slave Diac 💌
🔽 Ch 3	🖆 Set Param.	6	Set Parameter
🔽 Ch 4	🖆 Ack		Acknowledgement
🔽 Ch 5	Config	6	Check Config 🔹
🔽 Ch 6	Dutput	6	Data Output (Request to Slave)
🔽 Ch 7	🖆 Input	6	Data Input (Slave Response)
🥅 Ch 8	🖆 Global Ctr		Global Control
State M	achine Wizard Bus Pa	rameters Wi	zard
Load	Save		Cancel

#### - Enable

Enables/Disables the channel.

#### - Name

It can be used to better describe the visualized channel.

#### - Profibus Address

The Profibus address of the telegram. It depends on the selected "Type". For the type "Token Pass" it represents the Master Destination Address, for the other types it represents the Slave address; "[\*]" means all the address from 0 to 127.

#### - Туре

Type of the telegram. Possible Types are:

Data Input (Slave Response)	The Data-Exchange response telegram is shown.
Data Output (Request to Slave)	The Data-Exchange request telegram is shown.
Diagnostic Request to Slave	
Diagnostic Response (Slave Diagnostic)	
Acknowledgement	
Check Config	
FDL Status Request	
FDL Status Response	
Global Control	
Set Parameter	
Token Pass	

#### **Wizard Buttons**

They help you to fill the setting form.

## **Data Acquisition**

#### Press Start.

Select Contin. Scroll. if you want to have a Continuous Scrolling of the data. Useful for "N. of telegram/Ch" > 5000.

Select Repeat. Acq. if you want to repeat the acquisition continuously.

### **DP Address**

Select Show Add. if you want to show the Profibus Address. The DP address is shown at the top-left corner of the graphic.



## **Expand Trace**

Shows the selected trace in full screen mode.

## **Export Data**

The data can be exported into compatible text file (.csv format).

## **Keyboard Shortcuts**

F1	Help
Delete	Delete the selected trace
Up Arrow	Move up the selected trace
Down Arrow	Move down the selected trace
Left Arrow	Select previous trace
Right Arrow	Select next trace

## Measurement of time interval



Select **Enable Meas. Curs.** Inside the graphic area, press the **right button** of the mouse and place the first and the second cursor.

The measurement is shown at the top-right corner of the graphic.

## Offline Mode (.ptd files)

It can be used to analyze a ProfiTrace message file (.ptd). For to activate the **offline functionality**, you must use one time the program online with ProfiCore.



Select the trigger.

Trigger	×
Tr.1     Messages before the Trigger     Tr.1     Ch 1     Positive Slope     Level     0	100
C DISABLE	
Start after 0 [s] from the begin of the file Last Trigger Last Data	OK Cancel

Select if you want to start from the begin of the file (Start from 0 [s]) or after a time.

## Trigger

Trigger	×
C Tr.1 Messages before the Trigger Tr.1 Positive Slope Level 0	0
O Wait for ProfiTrace Trigger	
© DISABLE	
	ОК
	Cancel

Possible Trigger Types are:

Trig.1
Trig.1 and (Trig.2 Inside Interval)
Trig.1 and (Trig.2 Outside Interval)
Trig.1 or Trig.2
Transition faster than Interval Width
Wait for Profitrace Trigger
DISABLE

#### - Trig.1

In this mode you have only one trigger. You must select the trigger source, the positive or negative slope and the trigger level.

Example:

• Tr.1	<ul> <li>Messages before the Trigger</li> <li>500</li> </ul>	
Tr.1	Ch 1 V Positive Slope V Level 0.1	

#### - Trig.1 and (Trig.2 Inside Interval)

In this mode you have two triggers, the main trigger and the second trigger. You must select for both the trigger source, the positive or negative slope and the trigger level. You must choose also the Interval Width.

Example:

● Tr.1 and (Tr.2 Inside Interval)  ■ Messages before the Trigger	100
Tr.1 Ch 1 V Positive Slope V Level 0.5	
Tr.2 Ch 1 💌 Positive Slope 💌 Level 0.5	Interval Width [ms] 100

The trigger is generated if after a positive edge on channel 1 occurs another positive edge on channel 1 within the selected interval of 100 ms.

Example:

Tr.1 and (Tr.2 Inside Interval)     Messages before the Trigger	100
Tr.1 Ch 1 💌 Positive Slope 💌 Level 0.5	
Tr.2 Ch 2 💌 Negative Slope 💌 Level 0.5 I	Interval Width [ms] 100

The trigger is generated if after a positive edge on channel 1 occurs a negative edge on channel 2 within the selected interval of 100 ms.

#### - Trig.1 and (Trig.2 Outside Interval)

In this mode you have two triggers, the main trigger and the second trigger. You must select for both the trigger source, the positive or negative slope and the trigger level. You must choose also the Interval Width.

Example:

● Tr.1 and (Tr.2 Outside Interval)  ■ Messages before the Trigger	100
Tr.1 Ch 2 💌 Positive Slope 💌 Level 0.5	
Tr.2 Ch 4 💌 Positive Slope 💌 Level 0.5	Interval Width [ms] 500

The trigger is generated if after a positive edge on channel 2 occurs outside the selected interval of 500 ms a positive edge on channel 4, or never occurs. The trigger is reset is after a positive edge on channel 2 occurs a positive edge on channel 4 within the selected interval of 500 ms.

#### - Trig.1 or Trig.2

In this mode you have two triggers. You must select for both the trigger source, the positive or negative slope and the trigger level.

Example:

Tr.1 or Tr.2	Messages before the Trigger     100	
Tr.1 Ch 1	Positive Slope     Level     0.5	
Tr.2 Ch 3	▼ Negative Slope ▼ Level 0.5	

The trigger is generated if a positive edge on channel 1 or a negative edge on channel 3 occurs.

#### - Transition faster than Interval Width

You must select for the trigger source, the start level, the end level and the time.

Example:

• Transition faster than Interval Width	Messages before the Trigger	
Ch 1 💌	Level 1 0	
	Level 2 0.5 Interval Width [ms] 200	

The trigger is generated if a positive transition, from 0.0 to 0.5, faster than 200 ms occurs.

#### - Wait for Profitrace Trigger

In this mode the program wait for ProfiTrace Trigger. Please look the ProfiTrace help section "Search & Triggers".

#### - Disable

In this mode the trigger is disable.

#### Retriggering

If Repeat. Acq. is selected, ProfiGraph waits for the trigger signal before to repeat the acquisition.

## Time unit

▼ X axis unit = seconds

Select this checkbox = seconds Unselect this checkbox = Tbits

### Save the Screen

Saves the graphical screen in bitmap format (.bmp).

#### Select a trace

Before removing or changing a trace, you must select it. Press the left button over the trace name.

#### Statistic



It gives you useful statistical information about the period of digital signals: it can display time distribution, mean, standard deviation, minimum and maximum values of any trace. For instance, cycle time of PROFIBUS telegrams (Data Exchange, Token Pass) or any other cyclical digital signals.

## Scale



Press the Scale button or click over the scale label, insert the new limit and click outside of the edit box.



Click over the scale label and insert the new limit, than click outside of the edit box.

## Zoom IN

Inside the graphic area, press and hold the left button of the mouse for to draw the zoom window. Use the arrow button for scrolling.

- - Scroll right

## Zoom OUT



⊳

Press the Zoom Undo button

#### C.S.M.T. Gestione S.c.a.r.l.

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