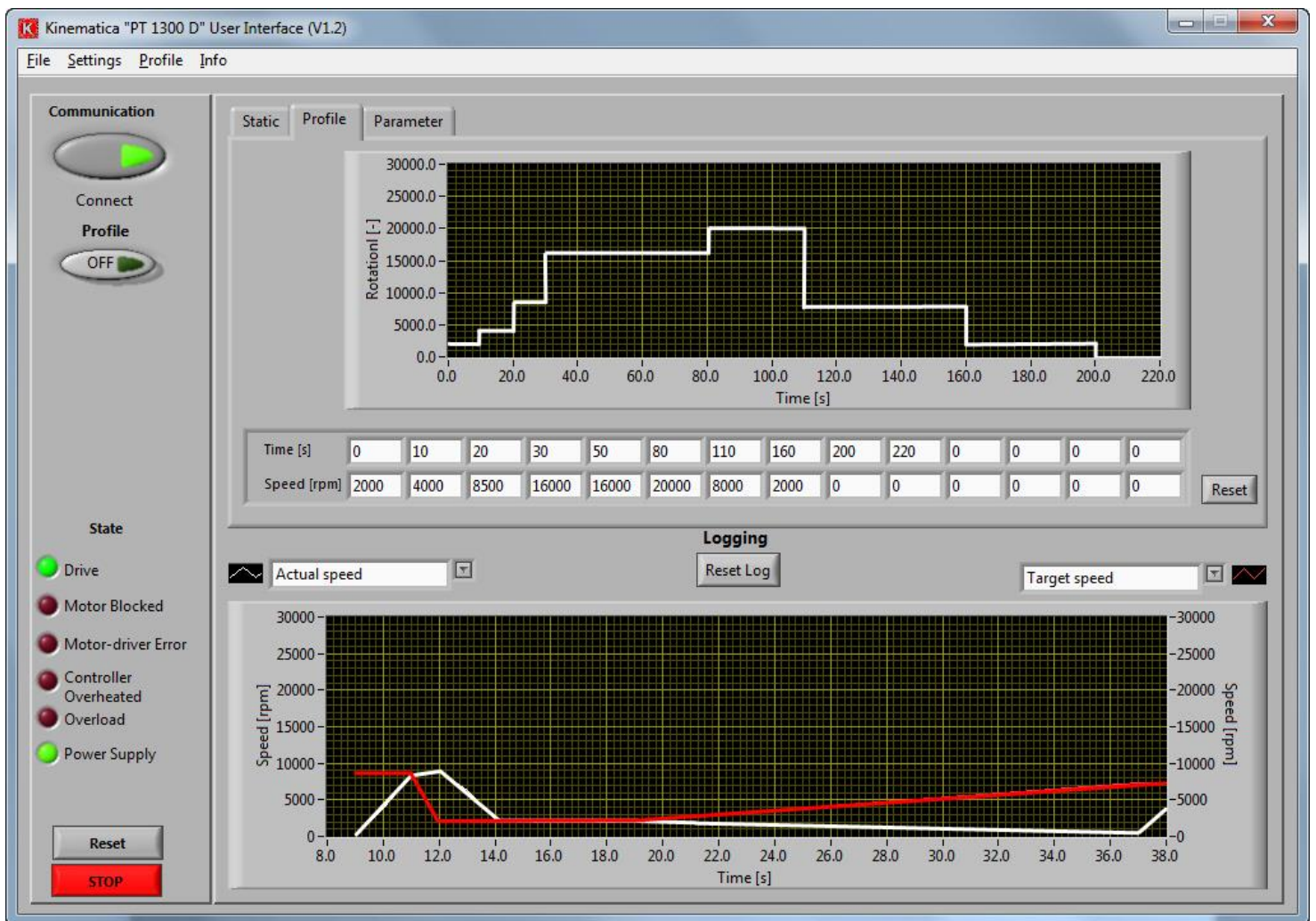


POLYTRON®



OPERATING INSTRUCTIONS

User interface v1.0

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	2	of	28

TABLE OF CONTENT:

1 INTRODUCTION	3
1.1 OPERATING INSTRUCTIONS.....	3
1.2 ORGANISATIONAL MATTERS	4
1.3 WARNING NOTICES.....	5
2 SAFETY.....	6
2.1 SUMMARY	6
2.2 SAFETY CONCEPT	6
3 DESCRIPTION OF THE EQUIPMENT	9
4 INSTALLATION AND OPERATION	10
4.1 INSTALLATION OF THE INTERFACE HARDWARE.....	11
4.2 DESCRIPTION OF THE SOFTWARE FEATURES	19
4.3 MANUAL SPEED ADJUSTING.....	24
4.4 SPEED ADJUSTING USING TIME-SPEED-PROFILES	24
4.5 DATA-LOGGING TO MS-EXCEL®-TABLES	26
5 MAINTENANCE	27
6 TROUBLE SHOOTING	27
8 DISCLAIMER OF WARRANTY	28

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	3	of	28

1 INTRODUCTION

This chapter gives information on the the structure of this document. It will assist you in making use of it and show how to find the required information quickly.

1.1 OPERATING INSTRUCTIONS

PLEASE READ THESE OPERATING INSTRUCTIONS BEFORE SWITCHING ON OR OPERATING THE EQUIPMENT. THEY DESCRIBE THE USE OF THE USER INTERFACE, ITS INSTALLATION AND MAINTENANCE.

THEY WILL HELP YOU AVOID ERRONEOUS USE AND SUBSEQUENT DAMAGE. ALTHOUGH POLYTRON® UNITS ARE DESIGNED FOR EASE OF SERVICE, THIS DOES NOT RELEASE YOU FROM THE OBLIGATION TO INSPECT YOUR EQUIPMENT CAREFULLY AND TO CLEAN IT THOROUGHLY.

KINEMATICA AG is a specialist manufacturer of machines and equipment for dispersion and mixing technology.

An important objective of these operating instructions is to fully inform you, the user, about the correct and safe use of our equipment.

In order to achieve this, it is essential that you should carefully study chapter 2, "Safety", and follow the instructions in this book.

1.1.1 RANGE OF VALIDITY

The information in these operating instructions relates to the POLYTRON® identified as follows:

Manufacturer: KINEMATICA AG, CH-6014 Luzern
 Brand name: POLYTRON®
 Product name: POLYTRON® USER INTERFACE PT 1300 D

1.1.2 TARGET AUDIENCE

These operating instructions are intended for all authorised users of our machines/equipment. We distinguish different user roles, taking account of the different demands placed on the user by the activity to be carried out.

You will find the definitions of user roles with the demands on the user in chapter 2, "Safety". You can fulfil one or more of these roles, provided that you meet the corresponding demands.

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	4	of	28

1.2 ORGANISATIONAL MATTERS

If you are unable to find the answer to any question in the operating instructions, please contact the equipment manufacturer directly.

1.2.1 LOCATION OF THE OPERATING INSTRUCTIONS

The operating instructions can only be of use to you if you always have them at hand. They should therefore always be kept at the place where the equipment is used.

1.2.2 MANUFACTURER CONTACT ADDRESS

KINEMATICA AG

Luzernerstr. 147a
CH-6014 Luzern
SWITZERLAND

Tel. +41-41-259 65 65
Fax +41-41-259 65 75
eMail info@kinematica.ch

1.3 WARNING NOTICES



THIS SOFTWARE IS JUST MEANT TO USE WITH A PT 1300 D DISPERSING UNIT. ANY OTHER USAGE IS NOT ALLOWED.



REMOTE OPERATION USING THE SOFTWARE DOES NOT RELEASE THE CUSTOMER FROM HIS RESPONSIBILITY TO SUPERVISE THE UNIT DURING THE PERIOD OF OPERATION.



**CAUTION!
WHENEVER THE DRIVE IS RUNNING USING REMOTE OPERATION AND A BRAKEDOWN OF THE CONNECTION OCCURS. THE DRIVE MUST BE STOPPED MANUALLY BY THE OPERATOR.**



**CAUTION!
WHENEVER THE DRIVE IS RUNNING USING REMOTE OPERATION, IT IS NOT ALLOWED TO WORK AT THE DRIVE OR AT THE COUPLING - DANFER OF INJURIES!**

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	6	of	28

2 SAFETY

This chapter is directed at all users of KINEMATICA laboratory equipment. It includes information on safe and optimum use.

2.1 SUMMARY

Any incorrect use of the installed equipment can be dangerous. Inadequately trained users can cause material damage and personal injury. This chapter informs you about the safety concept and the requirements for safe and optimum use of the equipment.

All those authorised to operate, service and repair the equipment are required to study chapter 2, "Safety".

2.2 SAFETY CONCEPT

The safety concept sets down the entitlement to use the equipment and the responsibilities of the individual users.

The machines and equipment are designed and constructed according to the state of the art and the recognised safety rules.

2.2.1 INTENDED USE OF THE EQUIPMENT

The equipment is designed and constructed for the following use:

- Dispersion and homogenisation of pumpable fluid products in accordance with the technical specifications (see point 3.5) and compatibility with the materials coming into contact with the products.

If you use the equipment for any purpose other than those listed, the manufacturer cannot be held liable for any resulting damage.

2.2.2 IMPROPER USE

Any use other than the "intended use" without the written approval of the manufacturer or any operation outside the technical limits of use is improper use.

2.2.3 USER ROLES

To guarantee safety, we place requirements on the users of the equipment that must be met without fail. Only persons meeting the requirements are authorised to work with the equipment.

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	7	of	28

We describe all those who work with the equipment as users. Since the requirements of these users are very much dependent on their activity, we distinguish the following user roles.

Contract partner:

The manufacturer can impose legal obligations on the contract partner when the equipment is purchased. The contract partner is obliged to ensure that the equipment is properly used.

Operating company:

The operating company ensures that the equipment is properly used and authorises persons who are entitled to work with the equipment in any one of the defined user roles. They are under the obligation to instruct the users.

Note:

Contract partner and operating company can be the same person.

Service technician:

The service technician is an employee of the operating company and looks after the equipment in special operating mode(s). He is a specialist with mechanical, electrical and electronic professional training. The service technician undertakes commissioning, decommissioning service and repair of the equipment. He must be appropriately trained to be able to carry out the service work required.

Operator:

The operator turns the equipment on and off. In the event of an alarm signal he informs the service technician.

2.2.4 DANGER AREA

System/equipment

The system danger area includes the whole system/equipment including the connecting lead and controls.

Proximity danger area

This refers to all areas within a defined distance of the equipment.

User danger area

This danger area includes all persons working with the equipment.

2.2.5 AREAS OF RESPONSIBILITY

In order that the system/equipment can be used safely and without risk, the users in various roles bear the responsibility for particular danger areas.

Contract partner:

The contract partner bears the responsibility for the "proximity danger area".

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	8	of	28

Operating company:

The operating company bears the responsibility for the "user danger area". Only those users may be authorised to operate the system/equipment who fulfil all requirements of the user roles concerned. In doing so, attention must be paid to the following points:

- It is to be ensured that all users of the system/equipment have fully read and understood chapter 2, "Safety" and act accordingly in a safety-conscious manner.
- It is to be ensured that no unauthorised person carries out work with the system/equipment.
- It is to be ensured that users are informed of the possible risks and dangers connected with the system/equipment.
- It is to be ensured that those being trained or engaged in general training are under the permanent supervision of a trained and authorised person.

Service technician:

The service technician bears the responsibility for the "system/equipment danger area". He ensures that the system/equipment is at all times free from technical faults, safe and functions correctly.

2.2.6 GENERAL SAFETY RULES

Observe the following general safety rules:

- follow these operating instructions,
- in addition, observe the legal obligations and requirements for accident prevention and environmental protection of the country in which you operate the equipment,
- do not make any modifications to the equipment without the written authorisation of the manufacturer,
- only original replacement parts may be used for repairs,
- before any service work on the equipment, it must be ensured that the electrical supply is switched off,
- after any service, maintenance or repair work has been carried out on the system/equipment, it must be given a test run by the service technician.
- depending on the place at which it is installed, circumstances may require that hearing protection is worn when remaining in the vicinity of the equipment for long periods.

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	9	of	28

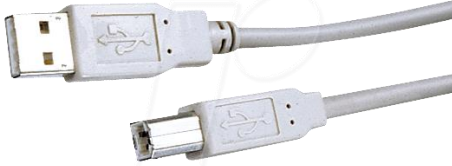
3 DESCRIPTION OF THE EQUIPMENT

The user interface is designed for controlling the POLYTRON® System with RS232/Modbus Interface.

The user interface software provides the following features controllable using a personal computer:


- Manual Speed Adjustment
- Free programmable, repeatable TIME-SPEED-profiles for automated work.
- Graphical real-time logging-diagrams for displaying process-parameters:
 - Actual Speed[rpm]
 - Target Speed[rpm]
 - Input Power[VA]
 - Output Power[W]
 - Motor Current[A]
 - Torque@Shaft[Ncm]
 - Temperature of controller[°C]
 - Supply voltage[V]
 - Data-Logging of the process-parameters into MS-Excel®-tables

The following connection cables will be supplied with the drive PT 3100 D:

	USB-Kable	Order-No.	Lengths
	USB 2.0 Cable (Plug&Play Driver)	9342216	3 m

Optional:

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	10	of	28

	RS-232-Cable	Bestell-Nr.	Länge
	Connects the PT 1300 D unit with the computer using the RS-232 cable	9342334	ca. 1.8 m

4 INSTALLATION AND OPERATION

Before starting the installation procedure, please assure that the following requirements are fulfilled:

REQUIREMENTS	
Free Space on Harddisk	Min. 200 MB
Operating System installed	Microsoft Windows XP, 7, 8, 8.1, 10 and higher
Needed interfaces:	1 x RS232-SERIAL-PORT or 1 x USB-PORT

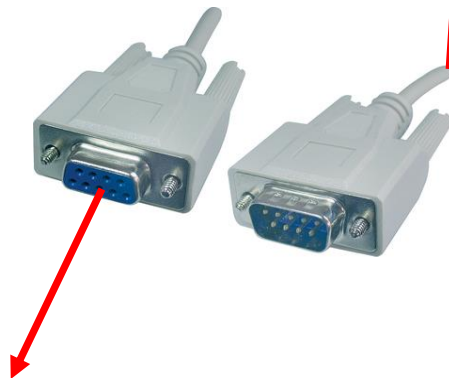
INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	11	of	28

4.1 INSTALLATION OF THE INTERFACE HARDWARE

4.1.1 CONNECTING THE DRIVE USING RS-232 INTERFACE

For connecting the drive to computer using RS-232 interface proceed as follows:

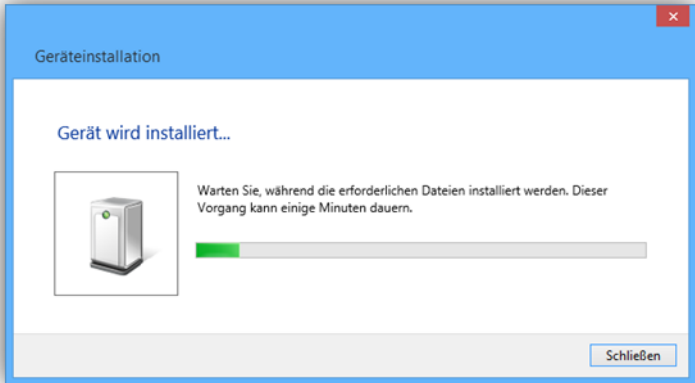
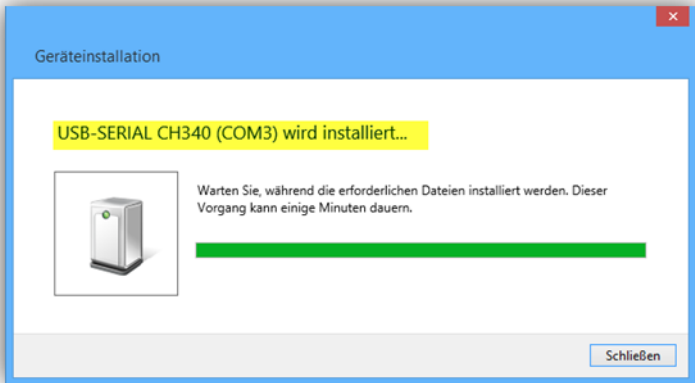
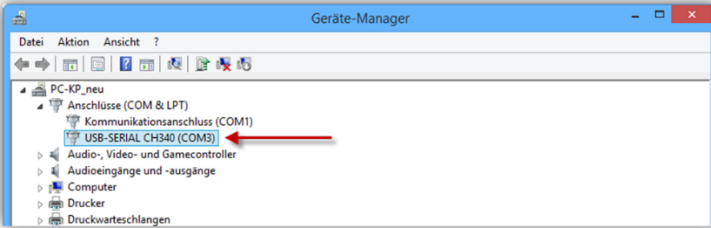
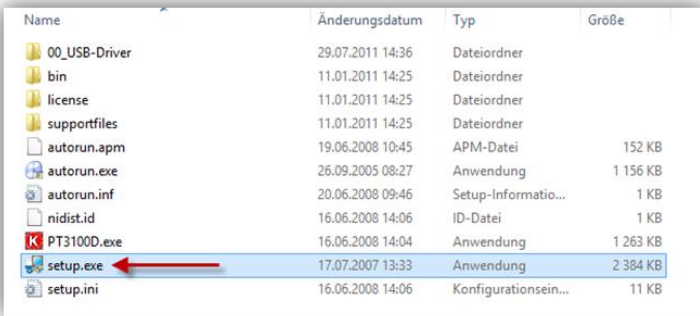
BACK SIDE OF DRIVE PT 1300 D



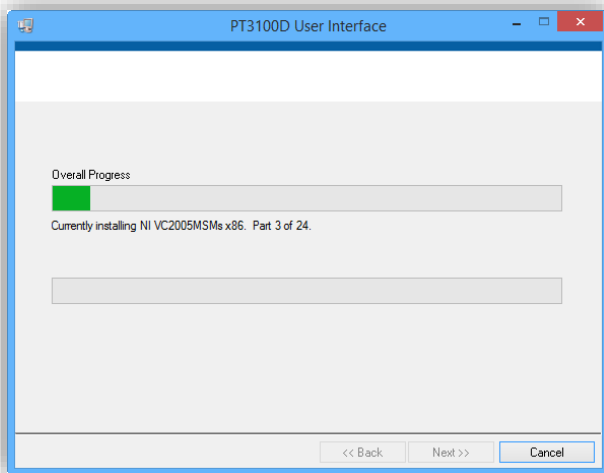
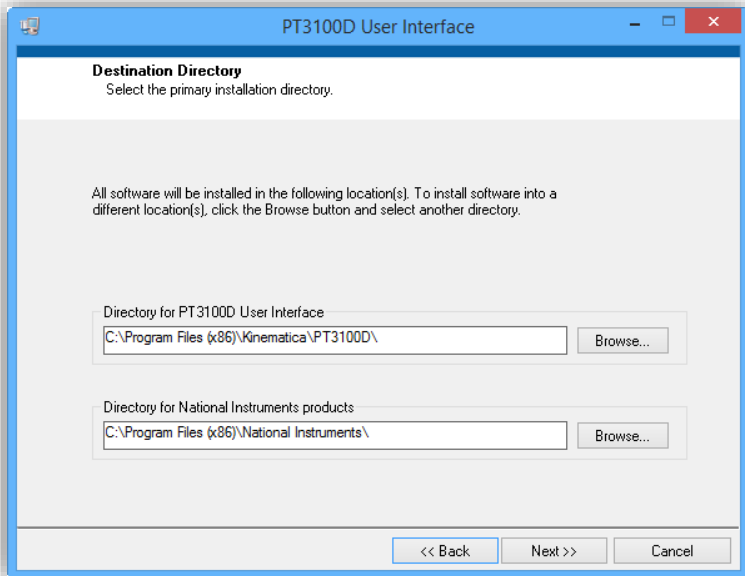
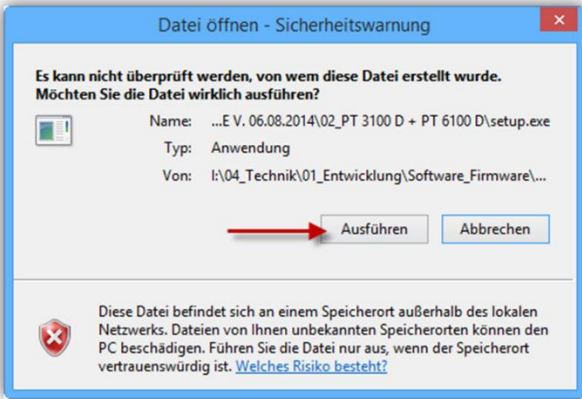
To personal
computer's
RS232

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	12	of	28

4.1.2 SETUP: USER INTERFACE FOR WINDOWS 8 AND HIGHER - USB

	<p>1. Connect the USB cable and the device will be installed with plug and play drivers.</p>
	<p>2. Go to Control Panel > Device Manager to check whether the drivers have been correctly installed and what port number was assigned to the device</p>
	
	<p>3. Run setup.exe to start installing the software.</p>

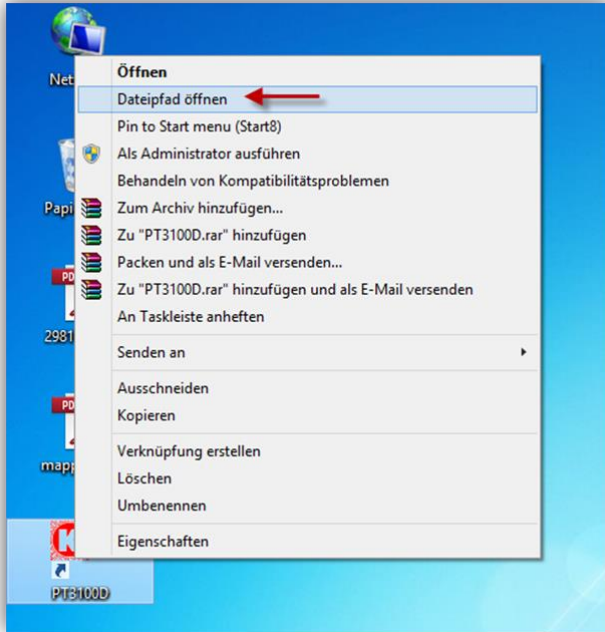
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	13	of	28



4. Install the software in the specified directory.

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	14	of	28

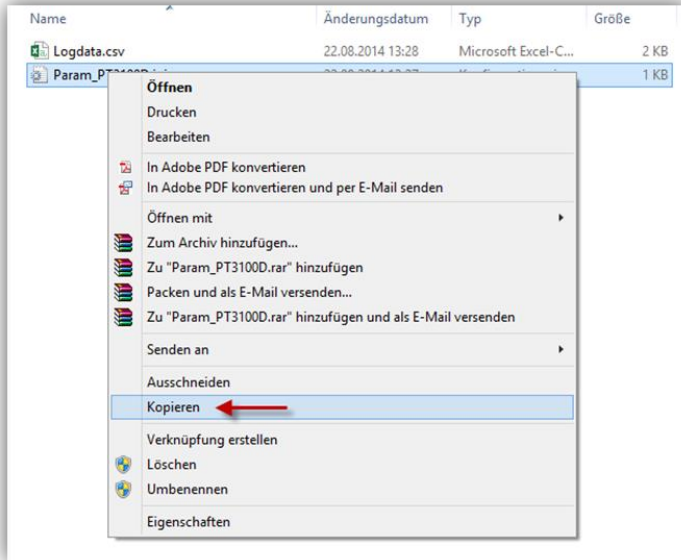
5. Restart the computer.



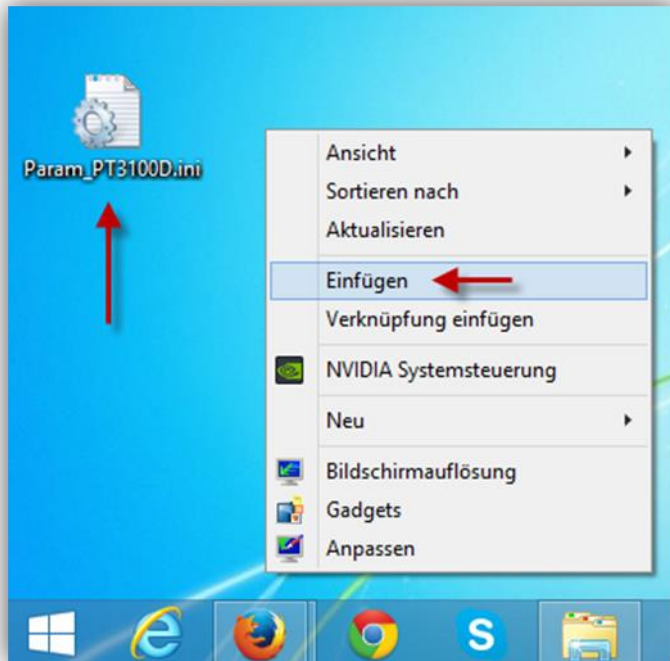
6. You should now see a shortcut on your desktop to the PT3100D software from Kinematica.

7. Right-click on the shortcut and select "Open file location."

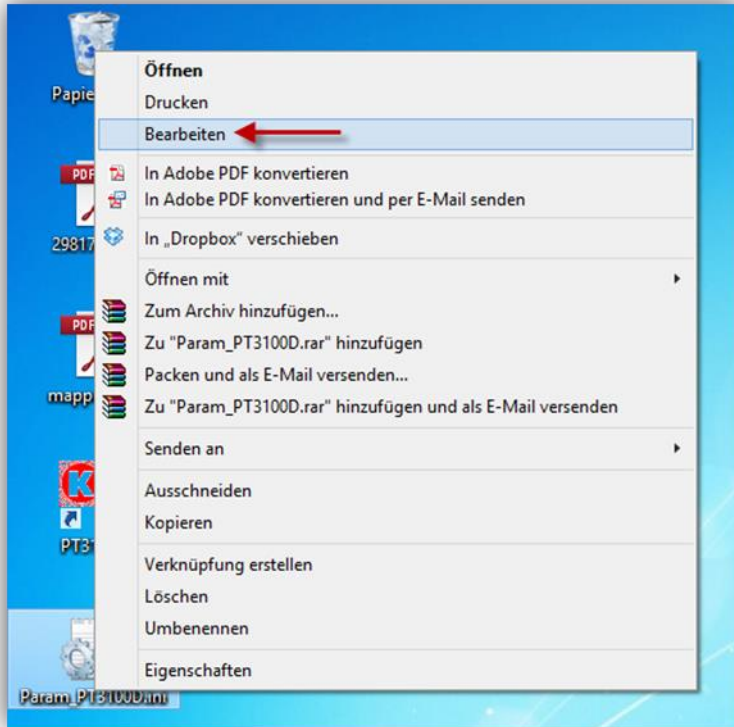
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	15	of	28



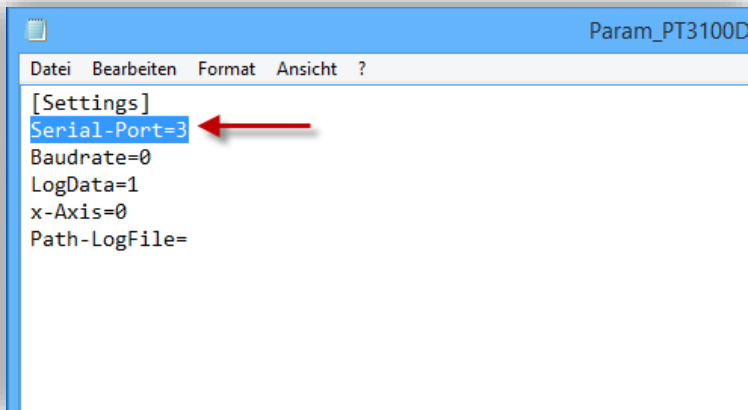
8. Go to the "data" folder and right-click the file named Param_PT3100D.ini, choose Copy and then paste it onto the desktop. Do not close the directory window; just minimize it because you will need it again.



System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	16	of	28



9. Right-click Param_PT3100D.ini on the desktop and select "Edit."

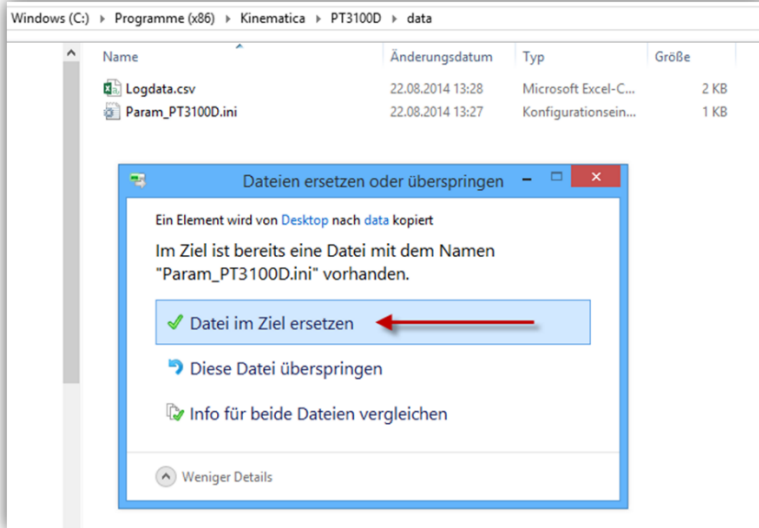


10. Enter the port number that was assigned to the device in Device Manager.

11. Click on File > Save and then close the editor window.



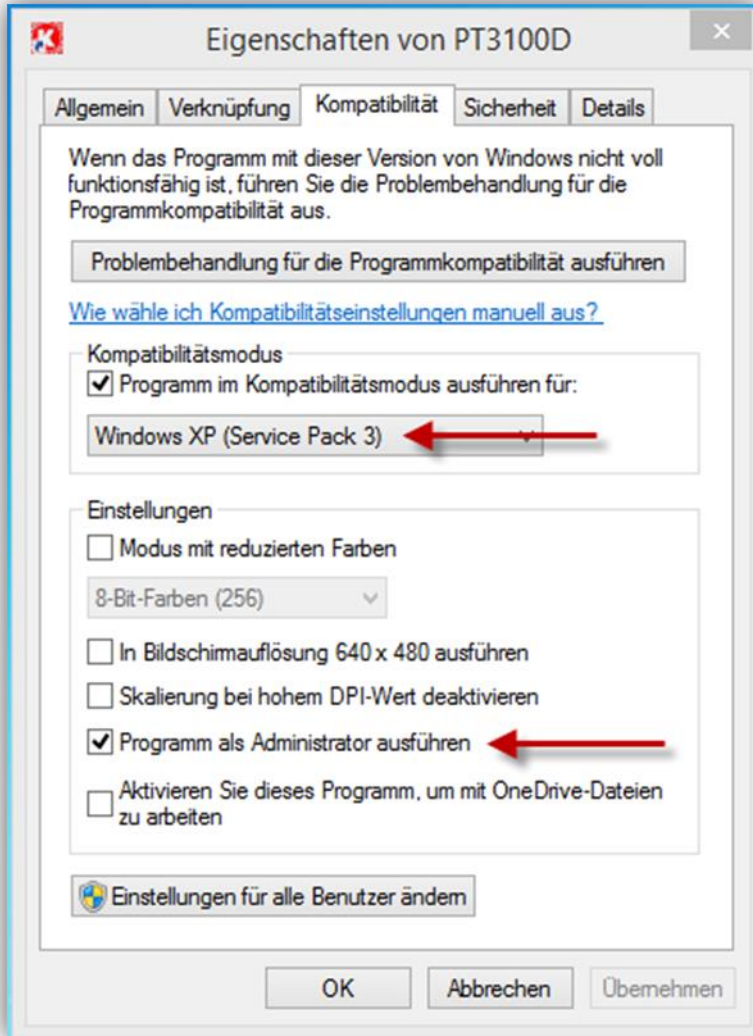
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	17	of	28



12. Right-click the Param_PT3100D.ini file on the desktop and go back to the original directory (reopen the window minimized in step 7) and paste it back into the same folder as before (Replace file in target). Then close all the windows and return to the desktop.

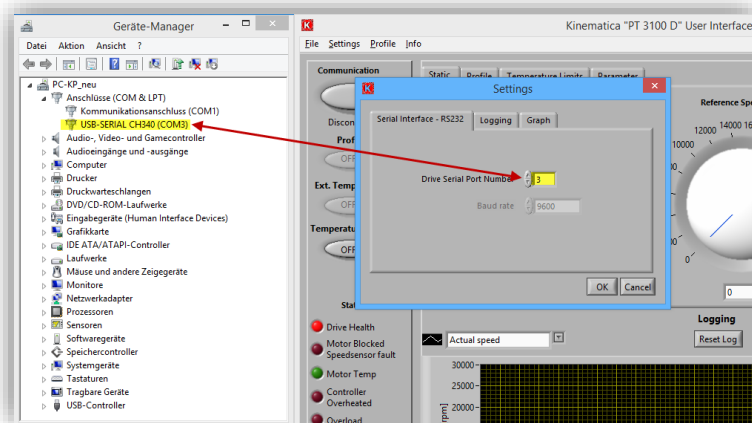
13. Right-click the shortcut on the desktop and select "Properties."

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	18	of	28



14. Click on the Compatibility tab and enable or select the following options.

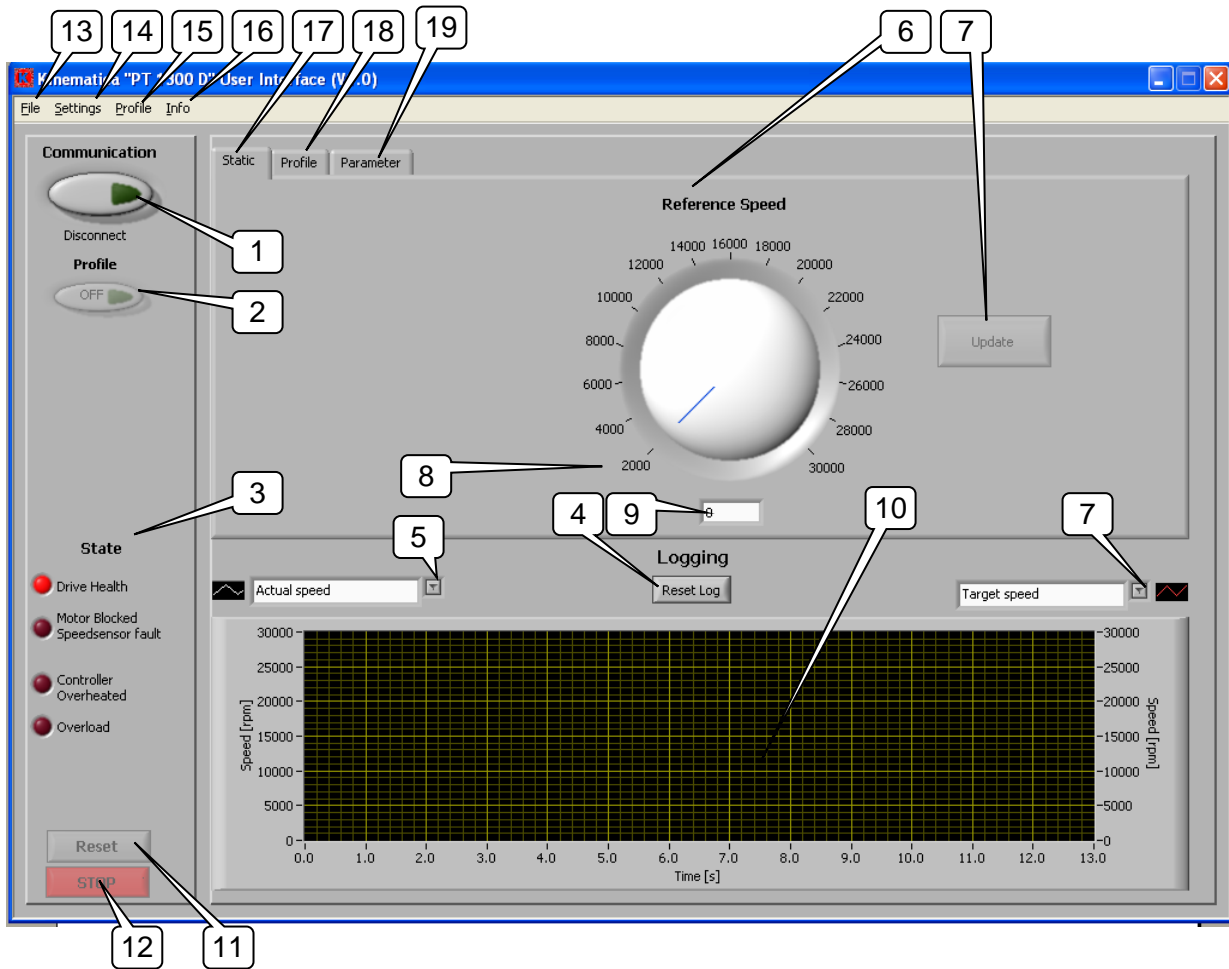
15. Confirm your changes with OK and launch the software



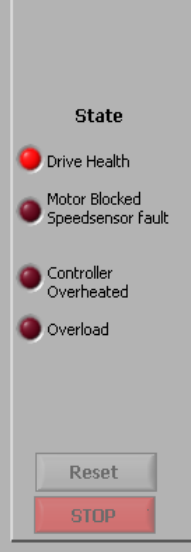
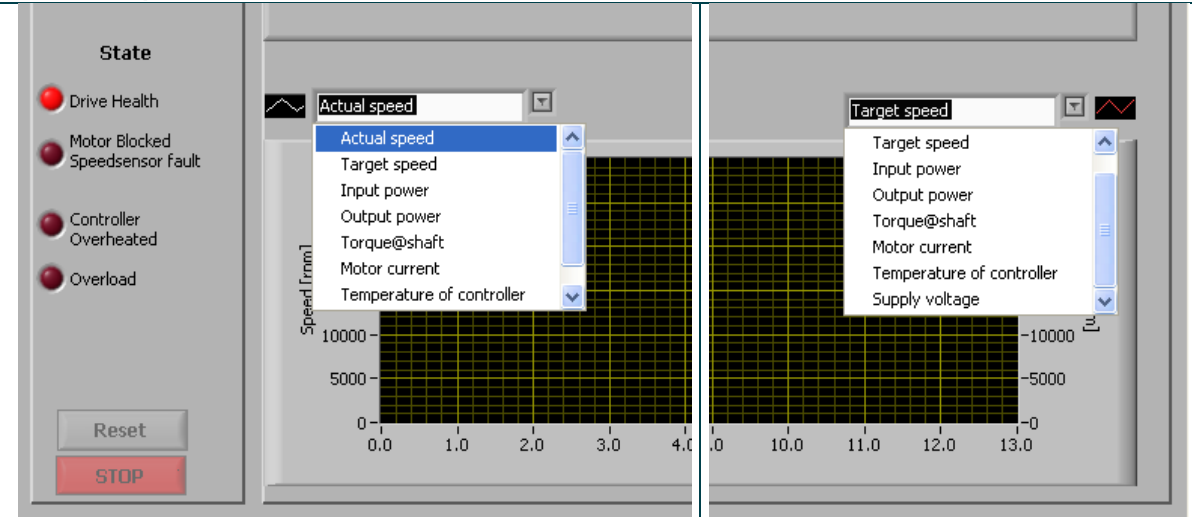
16. Check under Settings that you have entered the correct port number.

17. The dispersing device is connected with the software by clicking on Communication.

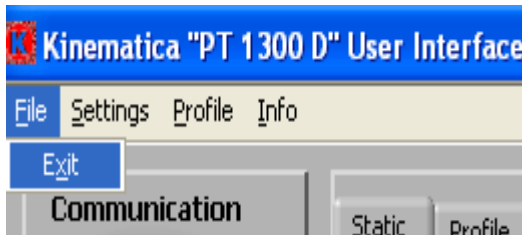
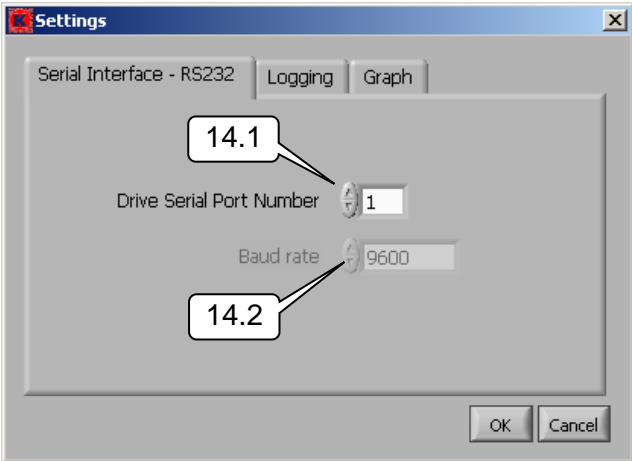
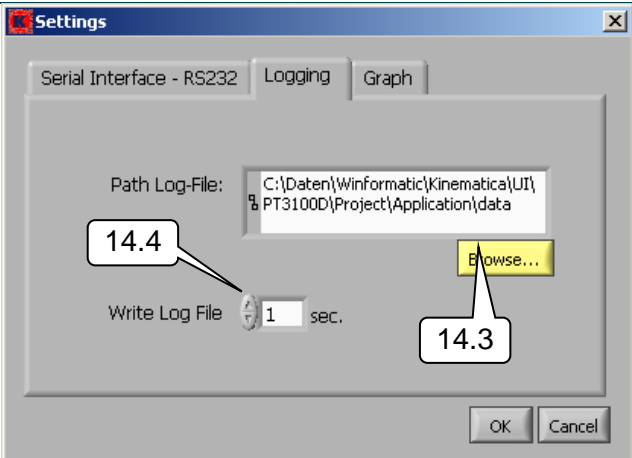
4.2 DESCRIPTION OF THE SOFTWARE FEATURES



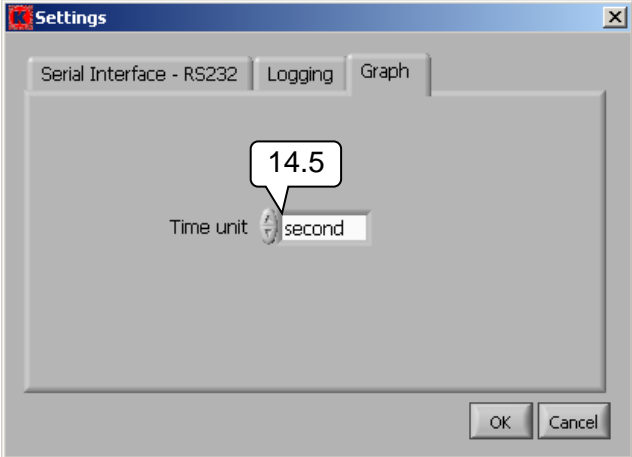
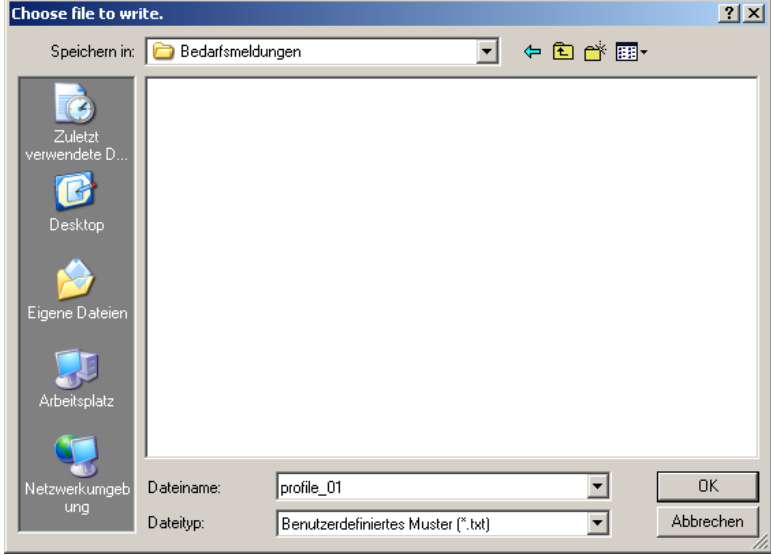
THE FOLLOWING TABLE DESCRIBES THE FUNCTIONS OF THE FEATURES NO. 1 TO 23:

Feat. No.	DESCRIPTION OF THE FUNCTIONS	
1	Clicking this button starts communication with the device. Green light indicates that communication is activated and ok.	
2	Clicking this button starts a defined TIME-SPEED-profile (see 20)	
3		<p>The state field indicates any conditions of the drive:</p> <ul style="list-style-type: none"> ▪ Drive health general indicator: Turns RED if any malfunctions will be detected or drive is not connected. Turns GREEN if unit a connection works properly. ▪ Motor Blocked Speedsensor fault: RED if motor is blocked or speed sensor is damaged. ▪ Controller Overheated: Turns RED when speed controller is overheated ▪ Overload indicator: Turns RED when drive cannot achieve target speed.
4	Clicking this button will erase the graphical data-logging to restart at the beginning (see 10)	
5		<p>Checkboxes for choosing parameters to be logged graphically. Two parameters can be visualized graphically at the same time.</p>
6	With this controller the speed can be adjusted. Move the mouse-indicator over the speed-indicator (blue), press the mouse button and move the indicator for adjusting a desired speed.	
7	Clicking the UPDATE-button will send the adjusted speed to drive.	
8	Speed scale from 0 to 30'000 RPM	

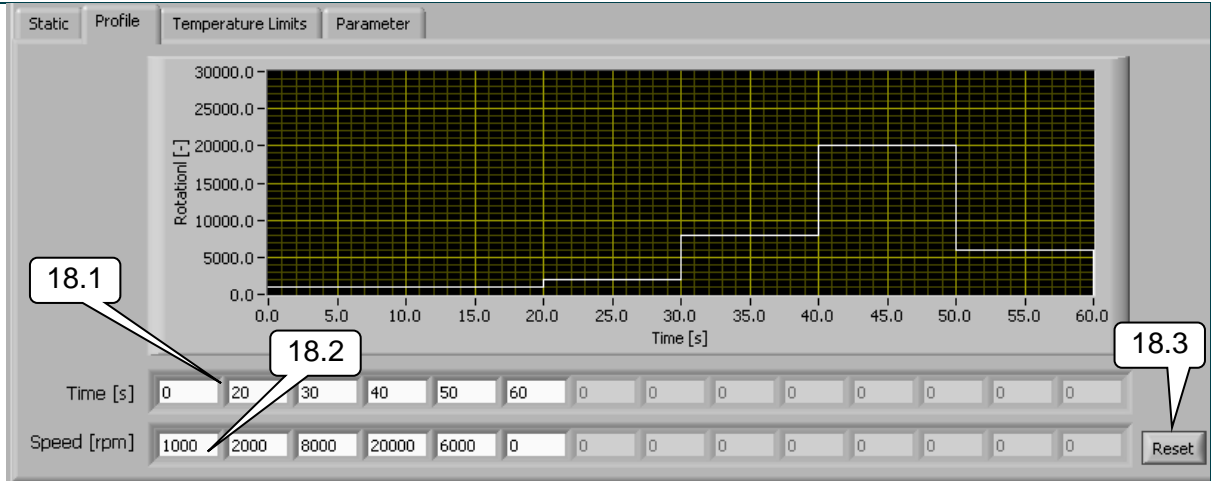
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	21	of	28

9	In this textbox the a desired speed can be entered manually	
10	This is area used for the visual data logging consisting of a horizontal TIME-axis and 2 vertical axis where the parameters SPEED, OUTPUT-POWER and MOTOR-CURRENT will be indicated. SPEED will always be indicated, others are optional to choose.	
11	The RESET-button will be used for resetting the drive after critical stops and errors such as blocking, overheating & spin start fault	
12	The STOP-button will stop the drive and the data logging at run-time.	
13	<p>For quitting the User Interface click as follows:</p> 	
14	<p>By clicking on SETTING the following window will be opened:</p> 	<p>14.1: In this field your serial port number for the drive can be set. (see chapter 4.1.3 to learn how to detect you serial port number)</p> <p>14.2: In this field the baud rate is indicated.</p> <p>Click OK when SETTINGS are done.</p>
		<p>14.3: In this field you can choose your directory for saving logged Excel-Tables</p> <p>14.4: In this field you can adjust the logging frequency. As default the parameters will be logged to the Excel-table every second.</p> <p>Click OK when SETTINGS are done.</p>

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	22	of	28

		<p>14.5: Choose your preferred unit for the TIME-axis (see 12): "seconds" or "minutes"</p> <p>Click OK when SETTINGS are done.</p>
<p>15</p>	<p>Save and load TIME-SPEED-profiles (see 18)</p>  <p>Profiles will be saved using the ".txt"-format.</p>	
<p>16</p>	<p>Clicking this button provides information about the version & the manufacturer.</p>	
<p>17</p>	<p>The STATIC-page is visible at first after having started the User Interface.</p>	
<p>18</p>	<p>On this page you can define TIME-SPEED-profiles and save them to your harddisk (see 15):</p>	

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	23	of	28



The time-speed steps can be entered as shown in the example above.

18.1: Line for entering point of time when the drive shall accelerate to another speed value

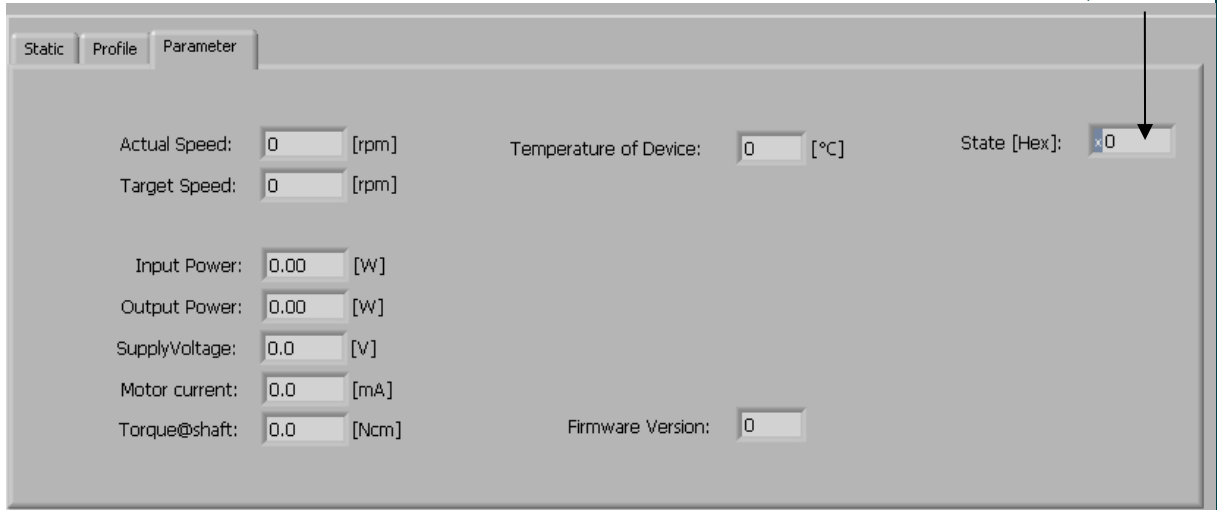
18.2: Line for entering the speed which the drive will accelerate for

18.3: To erased a profile, click RESET-button.

On this page every parameter can be viewed as plain text.

The State [Hex] field will be used for maintenance purposes and is not relevant for normal operation.

19



INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	24	of	28

4.3 MANUAL SPEED ADJUSTING

Assure that your drive system is turned on and the installation & cabling is done according to the scheme in chapter 4.1:

1. If the drive is not yet connected, please press button (1) to connect to the drive system.
2. Use the reference-speed knob (6) to set your desired speed or type your desired speed in the box below (9).
3. Press UPDATE to (9) execute. The drive should now change the speed to the set value.
4. For altering the speed again proceed with step 2.
5. To stop the drive instantly, press the STOP-button (12).

4.4 SPEED ADJUSTING USING TIME-SPEED-PROFILES

Assure that your drive System is turned on and the installation & cabling is done according to the scheme in chapter 4.1. The time-speed profile consists of a sequence from TIME/SPEED records. Every TIME/SPEED points means a change to this "SPEED" at this "POINT OF TIME". So the entered values are POINTS OF TIME when the speed will be changed to the desired value. The speed will remain at a constant value until the next POINT OF TIME and so on. The TIME-POINTS are absolute time-values not delta-values. The desired unit (min or sec) can be adjusted in the menu SETTINGS (14)

To define a time-speed-profile proceed as follows:

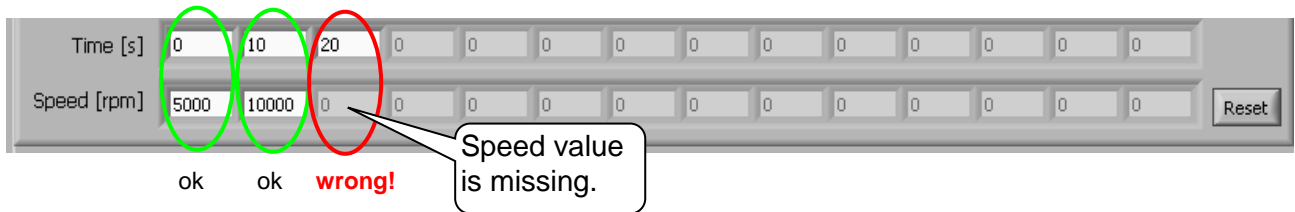
1. Press Button (1) to connect to the drive system.
2. Enter the time-points in the box (18.1)
 - o Click into the desired box using the mouse pointer.
 - o Enter the value using your keyboard.
 - o Press ENTER on your keyboard to confirm value
3. Enter the speed in the associated box (18.2) below.
 - o Click into the desired box using the mouse pointer.
 - o Enter the value using your keyboard.
 - o Press ENTER on your keyboard to confirm value
4. Repeat steps 2. & 3. to generate any specific speed profile. The profile will be visualized in the window.
5. Press (2) to execute the profile.



REMOTE OPERATION THE DRIVE USING TIME-SPEED PROFILES DOES NOT RELEASE THE CUSTOMER FROM HIS RESPONSIBILITY TO SUPERVISE THE UNIT DURING THE PERIOD OF OPERATION.

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	25	of	28

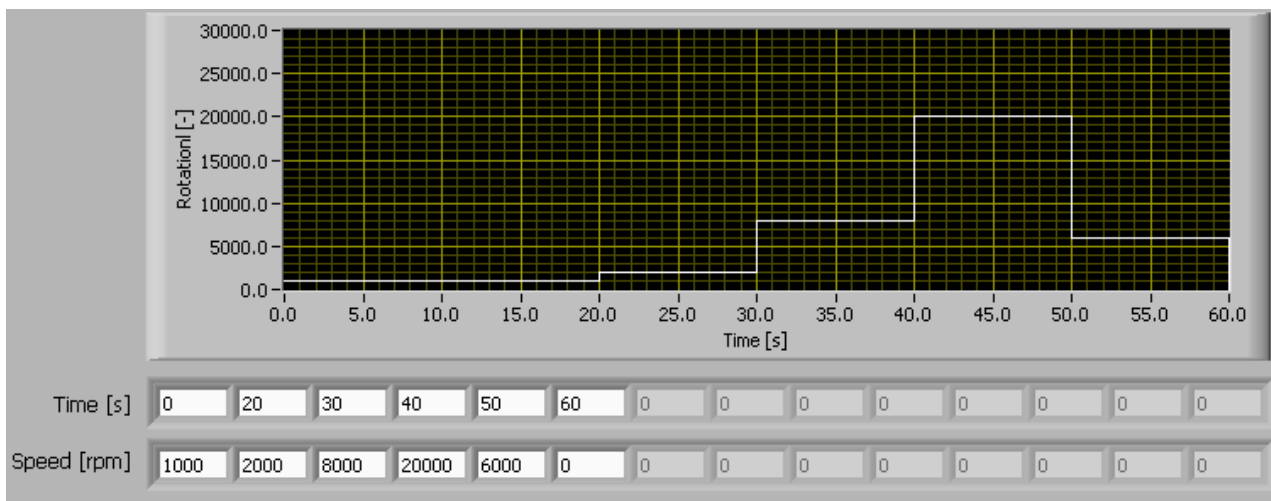
To receive a valid profile there must always be entered a time and a speed-value as a pair. A speed value without corresponding time value lead to invalid profile - and vice versa. See example as follows:



The following error message will occur when the above profile will be executed.



See example for a correct speed profile:



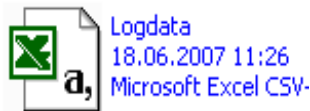
INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	26	of	28

4.5 DATA-LOGGING TO MS-EXCEL®-TABLES

Every time a job according to chapter 4.4 or 4.5 will be started, the data-logging into a Excel®-table will be activated in the background.

The following data will be logged:

- Actual Speed[rpm]
 - Target Speed[rpm]
 - Input Power[VA]
 - Output Power[W]
 - Motor Current[A]
 - Torque@Shaft[Ncm]
 - Temperature of controller[°C]
 - Supply voltage[V]
 - State
 - Button-Log
- Before starting, a directory for saving the logged-data should be defined using feature (14.3)
 - The data-file has always the name "LOGDATA.CSV" and must be opened using MS-EXCEL®.



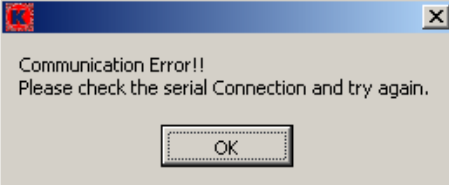

- When a job is done or STOP will be pressed, logging will be stopped too.
- For every new start of a job according to chapter 4.4 or 4.5 the logging-function will write data into the next row after the last STOP in the table.
- The automatically generated logfile "Logdata.csv" has to be closed. If not the values will not be written into the logfile.
- To save a table and avoid overwriting, the table can just to be renamed.
- The "Logdata.csv" can be deleted at any time when no job is in progress. Whenever a job will be started and no "Logdata.csv"-file exists it will be generated automatically.

INSTRUCTION MANUAL			
System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	27	of	28

5 MAINTENANCE

Make sure that the provided hardware will not be subjected to high temperatures or humidity.

6 TROUBLE SHOOTING

PROBLEM	REASON	CORRECTIVE MEASURES
The following message opens when trying to connect to the drive. 	Drive not turned on	Check that the drive is turned on.
	Wrong COM/USB port adjusted.	Check and correct the serial port number for the drive.
	Defective cable/adaptor connection cable	Replace the defective cable/adaptor.
The following message opens when trying to connect to the drive. 	Wrong COM/USB port adjusted	Check and correct the serial port number
	COM/USB port does not exist	Check and correct the serial port number for the drive.
	COM/USB port is occupied and should be reset	Check the ports for occupation. If this does not help, shut down & restart the computer
Data will not be logged to the Excel table	Table "Logdata.csv" is opened in Excel.	Close "Logdata.csv" and restart your job.
For problems related to the drive, see corresponding manual.		

System	POLYTRON®		
Type	PT 1300 D / User Interface		
Issue	3.0 / 01.07.2018		
Page	28	of	28

8 DISCLAIMER OF WARRANTY

In case of any accident caused by misapplication of the software and/or hardware by the user, KINEMATICA AG or its representations will not assume any liability for possible remote damages. The owner/operator has assure that the system will be operated according to the guidelines in the stated in the operating instructions.



REMOTE OPERATION OF THE DRIVE USING THE SOFTWARE DOES NOT RELEASE THE CUSTOMER FROM HIS RESPONSIBILITY TO SUPERVISE THE UNIT DURING THE PERIOD OF OPERATION.

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