## **Control Performance Analyzer 3**

Release 2.1.5

## Installation Instruction

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## Imprint

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## 1 Introduction

	Release
3 2.1.5	
lelp - About	
oftware details	
edition	CPA - Control Performance Analyzer
version	3
date	yyyy/mm/dd
release	X.X.X
d-1	
ompany data -	VAT Vakuumventile AG
ompany data name street	VAT Vakuumventile AG Seelistrasse
ompany data name street postcode	VAT Vakuumventile AG Seelistrasse CH-9469
ompany data name street postcode town	VAT Vakuumventile AG Seelistrasse CH-9469 Haag
ompany data name street postcode town country	VAT Vakuumventile AG Seelistrasse CH-9469 Haag Switzerland
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ompany data name street postcode town country web email tel	VAT Vakuumventile AG Seelistrasse CH-9469 Haag Switzerland <u>www.vatvalve.com</u> CH@vatvalve.com ++41 81 771 61 61
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## 1.1 Use of product

Use this product for computers operated by:

- Microsoft Windows® 7
- Microsoft Windows® 8
- Microsoft Windows® 10

This software provides control functions for VAT-control valves with D-Sub service connector:



Using this software, basic functions like "setup of controller", "open valve", "close valve", "learn", "updownload of learned data" can be executed, and many convenient functions like "monitoring pressure/ position", "analysis of pressure control performance", "communication monitor", etc) are available.

## 1.2 Technical data

This CPA software requires:

- 500 MB disk space
- 512 MB RAM
- RS232 serial com port or USB-to-RS232 converter (recommended with FTDI chip) / PCMCIA Card
- 1024x768 minimum resolution for the display
- Administrator rights for your PC
- Service cable refer to: <u>«Connect Valve to PC</u>»

This software has a self-detecting function which recognizes the type of the connected valve. According to this information, corresponding functions, screens and menus are provided.

## 2 Installation

Control Performance Analyzer is available as download form VAT homepage:

http://www.vatvalve.com/customer-service/informations-and-downloads/control-performance-analyzer

Note: Save the Zip file CPA and the CPA Installation Instruction on your PC.

### 2.1 Installation onto your PC

Note: This software can only be installed, if the "logged-on" user owns Administrator privileges.

If you are not able to install this program, please contact your System Administrator or Help Desk.

## 2.2 Start Installation procedure

1. "Unzip" the CPA

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2. "Double-Click" the folder



3. "Double-Click" the icon "setup"



After the install-program has been started, following the displayed dialog:

💭 VAT - Control Performance Analyzer 3	- • •
Leader in Vacuum Valves	
Welcome to the installation of the Control PerformanceAnalyzer 3	
System Requirements: Windows® 7 or later	
Please wait while the installer initializes.	
	Cancel

4. Select the primary installation directory and click the button [Next]:

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🐨 VAT - Control Performance Analyzer 3	
Destination Directory Select the installation directories.	VAT
All software will be installed in the following locations. To install software into a different location, click the Browse button and select another directory.	
Directory for VAT - Control Performance Analyzer 3	
C:\Program Files (x86)\VAT Vacuum Valves\CPA\3.0\	Browse
Directory for National Instruments products	
C:\Program Files (x86)\National Instruments\	Browse
< Back Nex	kt >> Cancel

#### 5. Agree the license agreement and click the button [Next] to begin installation:

🕼 VAT - Control Performance Analyzer 3	
License Agreement You must accept the licenses displayed below (	to proceed.
Software License	
Title to all software provided as separate modules or emboremain the property of VAT or VAT's licensors. VAT grant the Software together with the Goods. Customer shall not the Software, and may create derivative works only to the sublicense, assign, copy, distribute or disclose any portion written consent of VAT. Customer may transfer or sell its the Goods to a transferee which has accepted this Article	edded in any Goods sold by VAT ("Software") shall ts to Customer a non-exclusive, limited license to use decompile, disassemble or otherwise reverse engineer a extent permitted by VAT. Customer shall not n of the Software to a third party without the express license rights to use the Software only together with e in writing. VAT Vacuum Valves AG
	I accept the License Agreement
	<ul> <li>I do not accept the License Agreement.</li> </ul>
	<pre></pre>

6. Click the button [Next]:

#### 8 Installation Instruction

UAT - Control Performance Analyzer 3	
Start Installation Review the following summary before continuing.	VAT
Upgrading • VAT - Control Performance Analyzer 3 Adding or Changing	
NI-VISA 14.0     Run Time Support	
I	
Click the Next button to begin installation. Click the Back button to change the installation setting	8.
Save File << Back Next >>	Cancel

### 7. Wait until "Overall Progress is 100% Complete":

UAT - Control Performance Analyzer 3	
k.	
Overall Progress: 25% Complete	
Malidation install	
validating instali	
	<

9

8.	Click	the	button	[Finish]	:
----	-------	-----	--------	----------	---

🐶 VAT - Control Performance Analyzer 3	
Installation Complete	VAT
	1
Serial Interface Port (COM-Port) → Real or Virtual Note: If your computer hardware doesn't support a real se on a DB9 male connector please read the following informa	rial interface port (COM - communications port) based ation carefully.
USB-to-RS232 Converters / PCMCIA Cards The communication between the valve controller and the s is based on the serial RS232 protocol. If your hardware do usually DB9 connector) you can use a USB-to-RS232 comp port. Usually USB (universal serial bus) is the commonly us a USB-to-RS232 converter can be used to communicate w Experience has shown that some USB-to-RS232 converter RS232 converter with FTDI chipset. Alternatively you can	ervice software installed equipment (computer, laptop) pesn't support a real serial interface port (COM port, verter to extend your hardware with a virtual COM sed interface port on most computer equipment. Hence vith the service port of the valve controller. rs do not work properly. VAT recommends USB-to- use a PCMCIA card to expand your computer with an
	<pre>&lt;&lt; Back Next &gt;&gt; Finish</pre>

9. If this screen appears click the button [Restart] otherwise proceed with step 10:

VAT - C	ontrol Performance Analyzer 3.0	$\mathbf{X}$
Q	You must restart your computer to complete this operation. If you need to install hardware now, shut down the computer. If you choose to restart later, restart your computer before running any of this software.	
	Restart Shut Down Restart Later	

After restart of your computer the "Control Performance Analyzer" is ready for use.

10. Connect your valve to the PC as described in «Connect Valve to PC»

## 3 General

Note:

- The CPA 3 displays always the connected valve automatically.
- All window screen-shoots in this "Operating Manual" are examples!
- The windows of your installed CPA 3 depend to the connected valve and the installed valve firmware.
- The manual of CPA 3 you will find in CPA 3 folder: Help > Operating Manual



or in CPA 3 Status bar. Click [?] to open the Operating Manual.

COM4-38400-7-E-1	connected valve: 61532-KEAP-ANC2/0010	status: connected	scan-rate: 19 ms	→ (	0
------------------	---------------------------------------	-------------------	------------------	-----	---

## 3.1 Connect Valve to PC

#### Introduction

Connect the valve to your PC via a 'COM port', 'USB to RS232 converter' or 'Express card to RS232'. Use the supplied service cable, see in chapter: «<u>Spare parts</u>». The maximum cable length is 10m.

#### **Connection overview**



**Note:** If there is no RS232 port available on your computer, please use a 'USB to RS232 converter' (recommended with FTDI chip) or 'Express card to RS232' converter. Please use a converter that is supported by your PC and install the corresponding driver for the converter.

## 3.2 Start up

#### Introduction

Check whether the PC is connected via the service port to your valve. Make sure, that the valve is supplied by 24VDC (see cable to connector marked "Power"). The display on the valve shows the version number for a short time and than the letters 'C' and '0', after self test is finished.

You need not do any adjustments for the RS232 port in advance. Setup of the RS232-port for the PC is done automatically by Control Performance Analyzer Software.

1. Start the program on your Start-menu > All Programs > VAT Vacuum Valves >

👯 Control Performance Analyzer 3.0 🛛 📐

- 2. After start up is finished, the 'Control Performance Analyzer' displays it start up screen. (example see below)
- 3. Proceed with: «Connect CPA to VAT valve»

🧱 CPA - Control Performance Analyzer		ß
🔏 LOCAL	∯≻ Com Port	Version 3.0
navigation     valve status       Valve     mode       Sensor     access       Pressure Control     speed       Interface     control-alg       Cluster     warning       Tools     Help	position actual position [1000] remote 1000 target position: 100 target position: 100 OPEN 1000 - 1000 %, Serial Port Selection 800	pressure           actual pressure [mTorr]           -7           10000           8000           6000
	Software Mode Connect to VAT Valve Serial Port Selection	4000 2000 0 2000 0 2000 1000
1000 - 900 - 800 - 700 - 5 600	Senar Port Status Connected Device       •         COM1 ready       61534-TEST-MMA1/0001         COM3 ready       none         COM7 ready       none         •       •         •       •         •       •         •       •         •       •	10000 9000 8000 7000 6000 g
200 100 18:58	25 time Record 100:00:00.00 Pause 1 Clear Analysis	5000 4000 2000 1000 0 18:59:05 ze
COM1-38400-7-E-1 connected valve: 61534-TEST-N	MA1/0001 status: scan scan-rate: 18 ms	

Note: 'Control Performance Analyzer' check which valve is connected to the PC.

According to the type of valve (S61.2, S65IC, S65.1 etc.), slightly different screens and menus are displayed.

All necessary functions are provided to setup the valve and controller. Parameters are stored to the valve permanently.

## 3.3 Port Selection

#### Introduction

With this function it is possible to change the 'Software Mode'. (Connected to VAT valve or Stand-Alone Operation)

Window

<b></b> •	Com Po	ort		Versi
🖑 Serial Port Sel	ection			×
Help		Enter CPA 📫		
Software Mod	le			
Connect to	VAT Val	ve		-
↓ Connect	t to VAT	Valve		
Stand-A	lone Op	eration		
Serial Port	Status	Connected Device	e	*
👯 COM1	ready	61534-TEST-MMA	1/0001	
COM3	ready	none		
COM7	ready	none		
				-
Bootload	controll	er-firmware initially	/	
port scan enable	ed		VAT Device	es: 1

### 3.3.1 Connect CPA to VAT valve

1. In «Software Mode» select [Connect to VAT valve]

👯 Serial Port Sel	ection			×	
Ø Help		Enter CPA 🔿		T	
Software Mod	Serial Port Selection				
Serial Port	Status	Connected Device	1	*	
👯 COM1	ready	61534-TEST-MMA	1/0001		
COM3	ready	none			
COM7	ready	none			
				-	
Bootload controller-firmware initially					
port scan enabled VAT Devices: 1					

#### 2. Click [Enter CPA]

👯 Serial Port Sel	ection			×	
Ø Help		Enter CPA એ		T	
Software Mode					
Connect to	VAT Val	ve		-	
Serial Port Sel	ection				
Serial Port	Status	Connected Dev	ice		
👯 COM1	ready	61534-TEST-MN	MA1/0001		
COM3	ready	none			
COM7	ready	none			
				-	
Bootload controller-firmware initially					
port scan enabled VAT Devices: 1					

**Note:** The 'Control Performance Analyzer' is now ready for operation use. Refer to: «<u>Basic functions –</u> <u>use LOCAL MODE</u>».

### 3.3.2 Stand alone operation

#### Introducing

In this operation mode it is possible to 'Load' existing data from PC to CPA for checking only. No valve is connected to CPA in this operation mode.

1. In «Software Mode» select [Stand-Alone Operation]

👯 Serial Port Sel	ection			<b>—X</b> —
Help     Help		Enter CPA એ	V	
Software Mode				
Stand-Alon	e Operat	ion		-
Serial Port Sel	ection –			
Serial Port	Status	Connected Device		
🗶 COM1		61534-TEST-MMA1		
COM3				
COM7				
				-
Bootload controller-firmware initially				
port scan disabl	ed	٧	AT Devic	es: 1

#### 2. Click [Enter CPA]

<ul> <li>Genal Port Sei</li> <li>Welp</li> </ul>	ection	Enter CPA 🕏 💙			
Software Mod	Software Mode				
Stand-Alon	e Operat	tion			
Serial Port Sel	ection Status	Connected Device	*		
👯 COM1	ready	61534-TEST-MMA1/0001			
COMB	ready	none			
COM7					
COM7			-		
COM7	controll	er-firmware initially	~		
COM7	controll	er-firmware initially	Ŧ		

Example: 👯 CPA - Control Performance Analyzer 83 Ocm Port navigation valve status position pressure actual pressure [mTorr] actual position [1000] Pressure Control mode stand-alone Learn Learn Parameter Interface \*
\*
\* Tools CPA Help Pressure Control - Learn Parameter × ④ Help 😂 Load from File parameter list graph + 😕 🤭 ۶ Di 280 -\* III 00002753998 260 -00102588149 240 00202422300 00302256451 220 -00402090602 200 -00501924753 8 180 00601758904 - 160 -160 -140 -120 -100 -00701593055 00801427206 last learn 00901261357 sition 01001095508 01100929659 80 -01200763810 01300643886 60 -40 01400541946 20 format: Standard 0-| 0 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 5 time-constant: 1.38 s 10 checksum: 🗹 (passed) open position [%] parameter-check done connected valve: 61534-TEST-MMA1/0001 status: offline serial port scan-rate: 0 ms

Note: The "Control Performance Analyzer" is now ready for "Stand-Alone Operation" use.

## 3.4 Main screen of Control Performance Analyser

#### Window



Area	Description	Function			
A	top bar	REMOTE / LOCAL Port Selection Version - Release			
В	navigation	explorer menus, adjustment and control			
С	valve status	display the valve status			
D	position	monitor, open, close, hold, adjust and save position setpoint			
E	pressure	monitor, adjust and save pressure setpoint			
F	chart	record / analyze position, pressure in time			
G	status bar	display com port, connected valve, connection status and scan-rate			

## 3.5 CPA status bar

#### Introduction

There are two possible status of CPA. These are described in status bar on bottom of main screen.

#### Connected to VAT valve:

• Connected (CPA is connected to valve, communication is OK and operation possible)

COM1-38400-7-E-1	connected valve: 61238-PACH-AKB1/0002	status: connected	scan-rate: 24 ms	0

#### Stand-Alone Operation (only CPA without valve):

• Disconnected (CPA is not connected to valve, no communication and no operation possible)

CDM1-38400-7-E-1 connected valve: 61238-PACH-AKB1/0002 status: disconnected scan-rate: 395 ms

## **3.6 Explanation of Button (window top bar)**

#### Window

🐺 Valve - Setup				
❷ Help 😪 Refresh ۞ Default 🚽 Save ✔★★★				
⊂ valve speed				
1000 valve speed				
synchronization				
close 💽 target-position after synchronization				
default (not sealed) 💌 event to start synchronization				
short 💽 synchronization mode				
control stroke limitation disabled control stroke limitation				
risolation option				
not selected 💽 isolation valve option				
behaviour under specific conditions				
close 💽 target-position at power-failure				
close 💌 target-position at network-failure				
close <b>v</b> target-position at slave offline				
ready				

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Button	Function
🛃 Save	Save changed settings to valve controller
🚱 Default Settings	Set to default settings
🍣 Refresh	Reload changed settings from valve controller
Help	Open Online Help for this window
Esc or	Close the actual window

## 3.7 Basic functions – use LOCAL MODE

#### Introduction

Using the 'Control Performance Analyzer' is only possible, when the valve is the 'LOCAL Mode'.

• Click button [LOCAL]

👯 CPA - Control Pe	rformance Analyzer
🔏 LOCAL	

Now the valve can be operated easily via 'Control Performance Analyzer'.

First steps should be [OPEN], [CLOSE] etc.

position	actua 10 target pos	00 ition: 1000
OPEN CLOSE	1000 - 800 - 600 - 400 -	1000 800 500
HOLD	200-	100 0

Note: If LOCAL operation is finished, please switch back to 'REMOTE mode'

• Click button [REMOTE]



## 4 Help

## 4.1 Visit VAT

http://www.vatvalve.com

### 4.2 Spare parts

#### Introducing

For ordering the 'Service cable' please specify the fabrication number of the valve (see label on valve) when ordering spare parts. This is to ensure that the appropriate spare parts are supplied.

Item	Description	Ordering No.
1	Service cable 2 m (between computer and valve)	230327
2	Service cable 10 m (between computer and valve)	246056

For building the service cable by yourself, please use the following drawing.

You need a 5 line cable, 1 piece D-Sub 9pin female, 1 piece HD-Sub 15pin male (3 rows D-Sub).



Adaption for firmware download (instead of download dongle)



