

TECAM

smart – lite – pro – prolis



Software designed and programmed by Christian Baumgartner, Germany

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1. Installation and Uninstall

1.1. Intended use

Tecam is intended as a tiny LIS.

It is an optional tool to interface with instruments listed below and with local laboratory information system (LIS). It is intended to receive results from instrument and forward to LIS as well as receive patient orders from LIS to forward to instrument.



Tecam is not intended nor classified as a medical device software and not subjected to any regulations. The installation and operation is optional and under own responsibility. Read next chapter for further details

TECAM is supporting following instruments

TECAM LITE/PRO/PROLIS	TECAM Smart
Coatron A4	Coatron X
Coatron A6	Coatron M1
Coatron A6+	Coatron M2
AC4	Coatron M4
Coatron 1800	DiaCheck C
Coatron 3000	C1, C2, C4
Coatron 5000	Ceveron m



Capacity of database:

The database is limited to max. 110.000 results to ensure good performance even on PC with low resources. If the data exceed the limit, then TECAM will automatically delete the oldest 10.000 results without any backup or warning messages. Activate database backup function, if you require older results (read chapter 5).

1.2. Medical Software Classification

- Tecam is optional and not required for the intended use of instrument.
- Tecam is not pre-installed on any hardware nor designed to run on a special hardware.
- Tecam can't create nor manipulate result data
- Tecam doesn't create any information for medical use (diagnostic/therapy)
- Tecam does not change the use of instrument
- Tecam can't receive nor forward invalid data caused by transmission errors, because of transmission protocols of instruments and ASTM1394 standard.

TECAM has no possible health risk. According to Meddev 2.1/6 and IVDR 2017/746 such kind of standalone software is not medical.

Meddev 2.1/6 article f.1, LIS is not qualified as medical software
classify LIS

TECAM software is not qualified as "Medical Software" and not underlying CE registration.

1.3. Requirements

Windows	Windows 7 or 10 (32 bit and 64 bit) 1.0GHz or faster processor, 1GB of RAM, 1GB of available hard-disk space, 1280x720 screen resolution up to 1920 x 1080. 4K, UHD or higher resolution is not supported and must be scaled down before running TECAM.
Interface:	RS232 (if not supported, use USB to serial adapter and set virtual comm port number between com1 – to 15
Cable:	2x Female Sub D9, crosslink. Pin 2 to 3; Pin 3 to 2 and Pin 5 to 5. All other wires should be disconnected.
Capacity of Database	110.000 results



The database is limited to max. 110.000 results to ensure good performance even on PC with low resources. If the data exceed the limit, then TECAM will automatically delete the oldest 10.000 results without any backup or warning messages. Activate database backup function, if you require older results (read chapter 5).

1.4. Installation

Start "SETUP.EXE" from the CD or download latest version from internet. Ask local distributor for URL link. The Setup will install Smart, PRO or PROLIS and all required driver for database access. Your Antivirus software may give a warn. Exclude TECAM from antivirus sonar protection and continue setup.

1.5. Uninstallation

User can remove the program from Windows just like other programs: From Windows' Control Panel select "Add or Remove Programs", select "Smart", "PRO" or "PROLIS", click "Change/Remove" button. User can also uninstall the program by going to Windows' Start menu and related submenu, then select "Uninstall".

1.6. License & Registration

It is allowed to install TECAM more than one time. The license is always locked to the serial number of the instrument. This license can be installed on any computer, but will work only with the enabled analyser. You will be asked for a license after first start.

Enter correct fingerprint and activation code or import license file. Contact your local distributor if you require a license. It will be sent via email as soon as your request is confirmed by distributor. This process can take several days.

Invalid license message is shown if the activation code is invalid or if the serial number of instrument is not activated.

1.7. Synchronize Methods

This message is shown at first start or after update. Open database and check name and sequence of methods. Use function "Sync" to import methods from instrument. Read more information in chapter 6.8 *Method information of instruments*

1.8. Tryout Mode

You can cancel the registration. In this case TECAM will switch to Tryout mode. The software is fully functional, but allows only limited numbers of results and orders. For more information see next chapter.

1.9. Compare of licenses

Features	Smart	Lite	Pro	Prolis	TryOut
interface to instruments	Coatron X	Coatron A			
Control two instruments	Yes	No	Yes	Yes	No
Support of Touchscreen	Yes	Yes	Yes	Yes	Yes
Receive result from analyser	Yes	Yes	Yes	Yes	3x
Receive reaction curve	Yes	No	Yes	Yes	Yes
Sample continuous loading	-	Yes	Yes	Yes	Yes
Receive barcode from analyser	Yes	Yes	Yes	Yes	Yes
Save result to database	Yes	No	Yes	Yes	Yes
Print cumulative reports	Yes	Yes	Yes	Yes	Yes
Send result to LIS over RS232	Yes	Yes	Yes	Yes	1x
Send result to LIS over TCP/IP	Yes	No	No	Yes	1x
Receive orders from LIS	-	No	No	Yes	1x
Define orders	-	Yes	Yes	Yes	3x
Result database	Yes	No	Yes	Yes	Yes
Patient database	Yes	Yes	Yes	Yes	Yes
Statistical analyze (QC) (Levey Jennings + Westgard)	Yes	No	Yes	Yes	Yes
Export data to PDF,XLS, HTML	Yes	No	Yes	Yes	Yes
Multi language	Yes	Yes	Yes	Yes	Yes
Test calibration management	Yes	No	Yes	Yes	Yes
integrated TECMONI	Yes	-	-	-	-
User account login with different access levels	Yes	Yes	Yes	Yes	Yes

1.10. Control 2 instruments

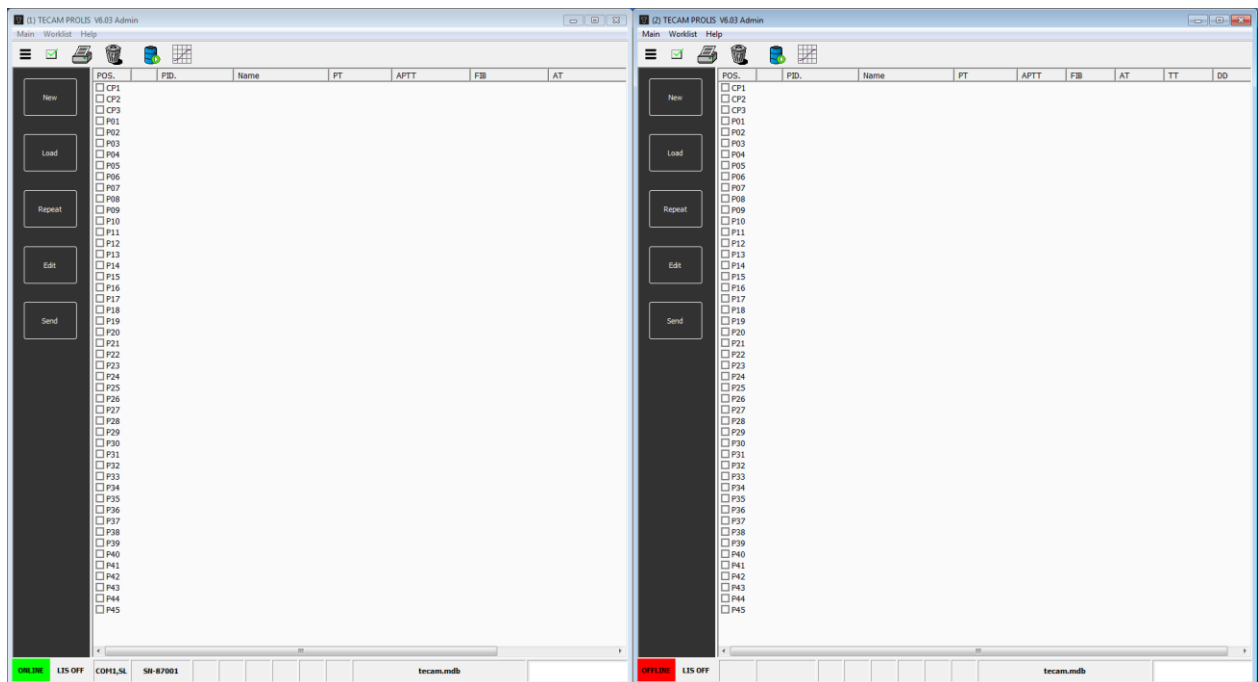
TECAM software can control two instruments, if license SMART, PRO or PROLIS is installed.

Recommend installation and procedure

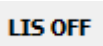
1. Connect both instrument with PC and switch on. You need two RS232 and two cables !!
2. Install TECAM and run as described in chapter installation
3. Goto option menu and check "Control 2 instruments"
4. Resize TECAM window to half size of screen. Windows 7+8 user can split the screen by left mouse click and hold on the titel of and shifting the windows to the left or right side of screen
5. Goto options menu and set correct analyser-ID
6. Now start TECAM a second time and enter license for the second instrument.
7. Split screen and place wndows on the right side of screen.
8. Exit TECAM

Start TECAM for two instruments

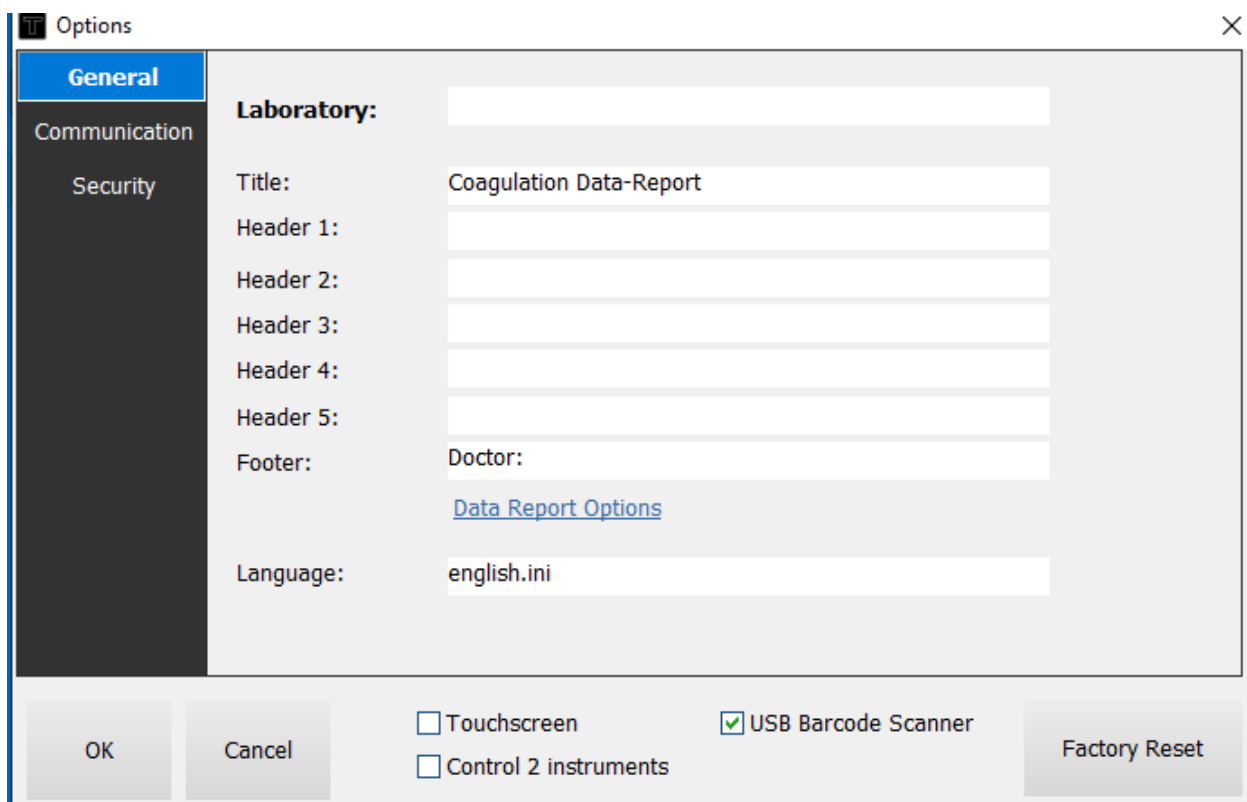
1. Connect both instrument with PC and switch on. You need two RS232 and two cables !!
2. Start TECAM and the first instrument will be connected
3. Start TECAM again and the second instrument will be connected



2. Configuration

	Click on this icon to open the option menu. (Requires login as ADMIN !)
	Click on this icon to connect with instrument. Open menu Help/Logfile RS232 in case of problems.
	Click on this icon to connect with LIS. Open menu Help/Logfile ASTM in case of problems.

2.1. General options



Options [X]

General

Communication

Security

Laboratory: [Text Field]

Title: Coagulation Data-Report

Header 1: [Text Field]

Header 2: [Text Field]

Header 3: [Text Field]

Header 4: [Text Field]

Header 5: [Text Field]

Footer: Doctor: [Text Field]

[Data Report Options](#)

Language: english.ini

OK Cancel ☐ Touchscreen ☒ USB Barcode Scanner ☐ Control 2 instruments Factory Reset

Report options: see chapter [Create a report](#) on page 46

Language: Select language file

Touchscreen: Enable , if your display supports touchscreen function.

Control 2 instrument Allows to start TECAM twice and control two instruments with one PC

USB Barcode Scanner Allows to input Patient-ID with handheld scanner and easy request to LIS

Factory Reset: Reset TECAM to default and reset table "method" in the database.

2.2. Data report options

See chapter 6.5 *Create a report*

2.3. Communication options

The screenshot shows the 'Options' dialog box with the 'Communication' tab selected. The 'General' tab is also visible. The 'Communication' tab contains the following settings:

- Mode: ☒ RS232 (Xon)
- Analyser: 01
- Server-IP: 127.0.0.1
- Port: 1005
- TimeOut(sec): 10
- NAK Repeats: 3
- Comm Port:1: Com2
- Comm Port:2: Com5
- 115200,N,8,1
- A6P, 5000
- ☐ print result automatically
- ☒ request host automatically
- ☒ transmit result-1 (s,E)
- ☒ transmit result-2 (% ,mg/dL)
- ☒ transmit result-3 (INR)
- ☐ transmit curve
- ☒ use patient information from host

Buttons at the bottom: OK, Cancel, Touchscreen (unchecked), Control 2 instruments (checked), Factory Reset.

Mode of LIS: TCP/IP: Connect TECAM to laboratory information system via network. The protocol is ASTM over IP, which allows sending results to LIS and receiving order from LIS (bidirectional communication)

RS232 (ON): Connect TECAM to laboratory information system via RS232. The protocol is TECAM, which allows sending results to LIS and not receiving order from LIS (unidirectional communication). The LIS must acknowledge each result with "ACK" message. Transmission errors are not detected in this mode.

RS232 (OFF): Same as RS232(On), but The LIS must "not" acknowledge each result. Transmission errors are not detected in this mode.

NONE: No LIS is connected

Analyser (*): Enter ID number of instrument. This allows the LIS to identify the instrument. Here the analyser is identified as Nr.10 in laboratory "02"

Server-IP(*): IP address of LIS server

Port(*): Port number of LIS server. Ensure , router and firewall support port forwarding

TimeOut(*): Transmission error is generated, if LIS do not response within time

NAK repeats(*): TECAM repeat data transmission in case of transmission error. After X-repeats it will stop and an error message is generated, if LIS do not response within time

Com Port 1: RS232 port number for instrument communication.
Auto: TECAM will search for instrument at port Com1 to 15.
ComX: Set to ComX, if you know the comm port

Com Port 2: RS232 port number for serial LIS communication (mode = RS232(ON) or OF)
Protocol: Setup to instrument, which is connected with TECAM

Print result automatically:
Result will be printed automatically and immediately when received from analyzer. Activate this function, if you don't use the integrated printer of instrument.

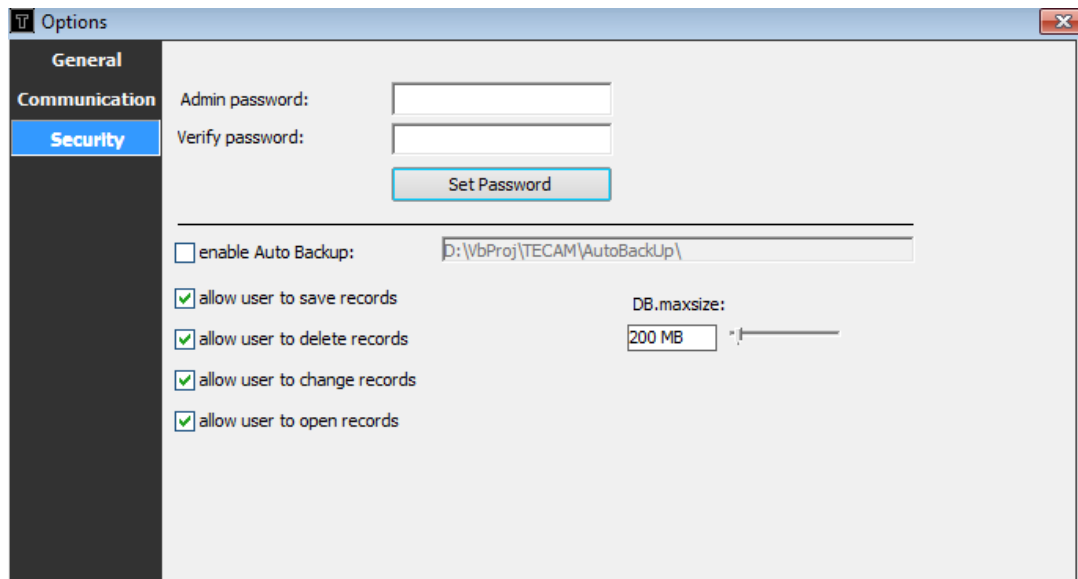
Request host automatically^(*):
TECAM will request patient order information from LIS , when patient-ID numbers are received from instrument.

Transmit result 1,2,3 ^(*):
Defines which result should be forward to the LIS. The instrument sends upto 3 results per method to TECAM. For PT eg. It will send sec + % + INR.

Use patient information from host:
TECAM will request patient name from LIS , when patient-ID numbers are received from instrument. Current name stored in the local database will be overwritten.

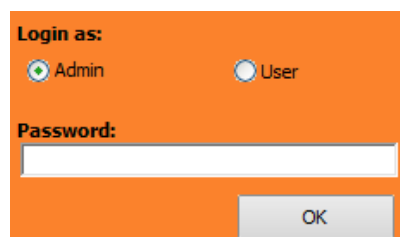
^(*) Only required for mode "TCP/IP"

2.4. Security options



Admin password: Keep it blank , if no admin is used.

TECAM will ask for login at program start, if password is not blank



- Enter Admin password to login as administrator or
- Change to User and keep password blank.

Delete file "tecam.ini" in the installation folder to reset the admin password

About Administrator and User

Only the admin is allowed to open and change options menu.

Enable Auto Backup: TECAM will back up the database of recent 7 days . This may take several seconds during program start, especially if database is more than 100MB. Deactivate Auto Backup , if database is saved by external backup software.

Allow user to save records: Only ADMIN can save new results, if activated

Allow user to delete records: Only ADMIN can delete results in the database, if activated

Allow user to change records: Only ADMIN can change results in the database, if activated

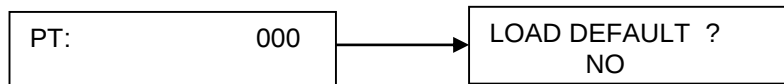
Allow user to open records: Only ADMIN can open and access database, if activated

DB maxsize: Limit the size of database.100 MB is space for around 10.000 results. The size can be changed any time from 50 upto 3000MB. If you set the limit below current size of database, then TECAM will ask at next start to delete the oldest results in database and compress database.

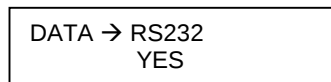
2.5. Connecting Coatron M1

In default the RS232 of Coatron is used for printer device. You must disable the printer interface.

- Restart Coatron M1
- Press key **"Timer"** + **"Enter"** simultaneously and select default. Press ENTER to continue

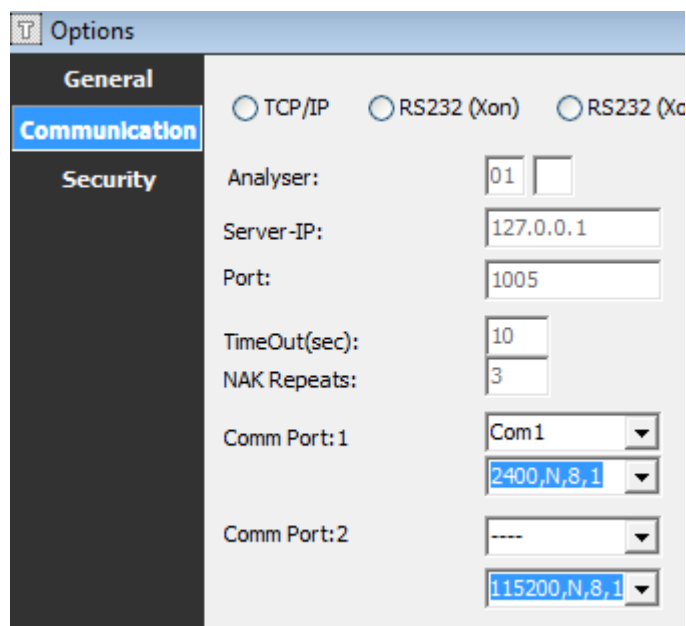


- Set DATA to RS232 = YES



Configure TECAM SMART interface

- Open option menu, register "Communication".
- Change Comm Port 1 to correct comm port and 2400,N,8,1



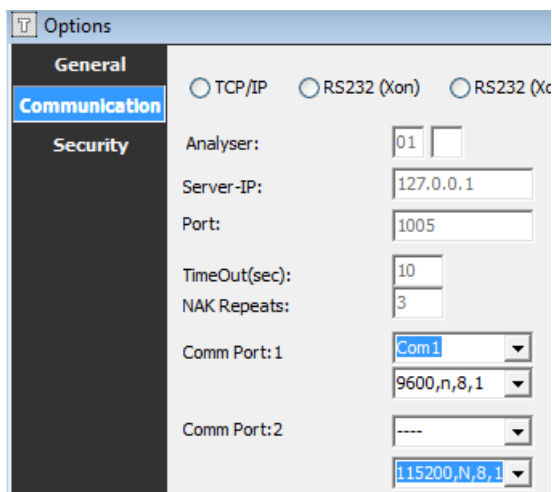
2.6. Connecting Coatron M or Coatron X

- Connect instrument service port to RS232 of PC and start TECAM



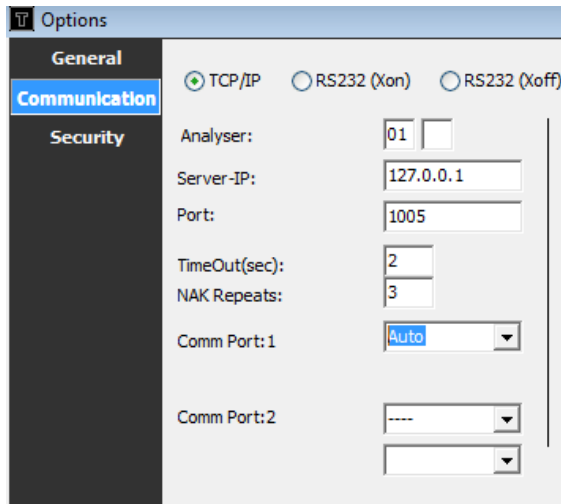
Select device and continue. If connection failed

- Open option menu, register "Communication".
- Change Comm Port 1 to auto or correct comm port and 9600,N,8,1.



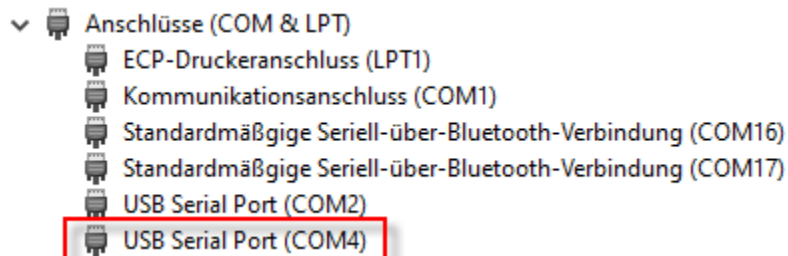
2.7. Connecting Coatron A

- Connect instrument service port to RS232 of PC
- Open option menu, register "Communication".
- Change Comm Port 1 to auto or correct number
- Open menu Help/Logfile RS232 in case of problems



Troubleshoot, if auto connection failed:

- Open the Windows device manager and check com port settings



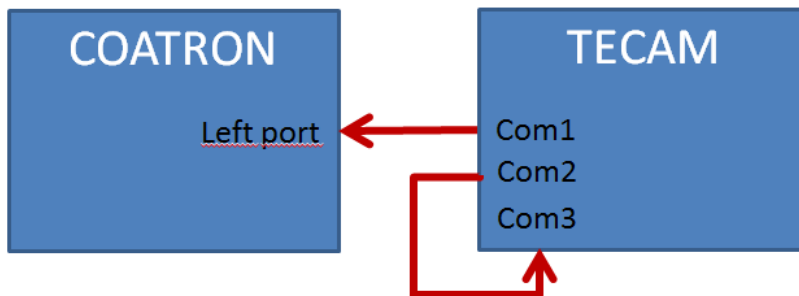
On this PC there are 6 serial ports installed used for Bluetooth and others. Com4 is the coagulation analyzer

- Open option menu, register "Communication".
- Set Comm Port to 4

2.8. Connecting to LIS over RS232

Forward results to LIS over RS232 line. Detailed information about TECAM protocol and format of result message can be provided on request.

Cabling:

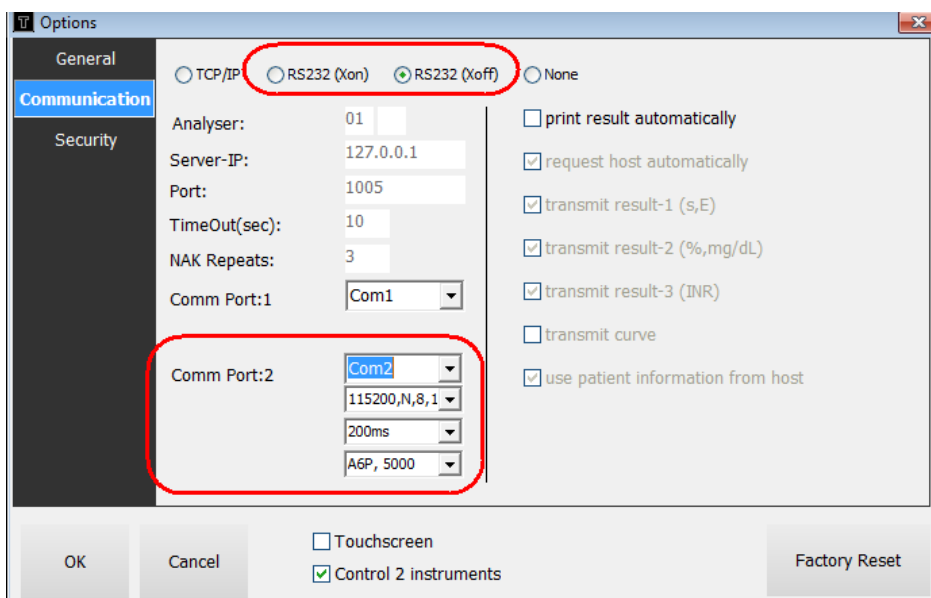


You need 3 comm ports on TECAM side, if LIS and TECAM is installed on same personal computer.

In this example, TECAM talk to Coatron over Com1 and with LIS over Com2.
The input port of LIS software must be configurated as “Com3”

Port settings:

Open option menu communication and set Comm Port-2 as below



- TECAM send results to LIS over Com2, 115200Baud without handshaking
- TECAM wait 200ms before sending next results
- The result format is according to Coatron A6 Plus

RS232 (Xon): Data transmission with handshaking. Each message must be acknowledged or is repeated max. 3x in case of transmission errors.

STX = ASCII (2)	Start of transmission
ETX = ASCII (3)	End of transmission
DLE = ASCII (16)	DATA LINK
ACK = ASCII (6)	Acknowledge
NAK = ASCII (21)	No Acknowledge

TECAM connect to LIS:

TECAM send:	STX DLE ETX
LIS must answer:	STX ACK ETX or any other message

TECAM send result LIS:

TECAM send:	STX <Result> ETX
LIS must answer within 3sec:	STX ACK ETX -> next result
	STX NAK ETX -> repeat result

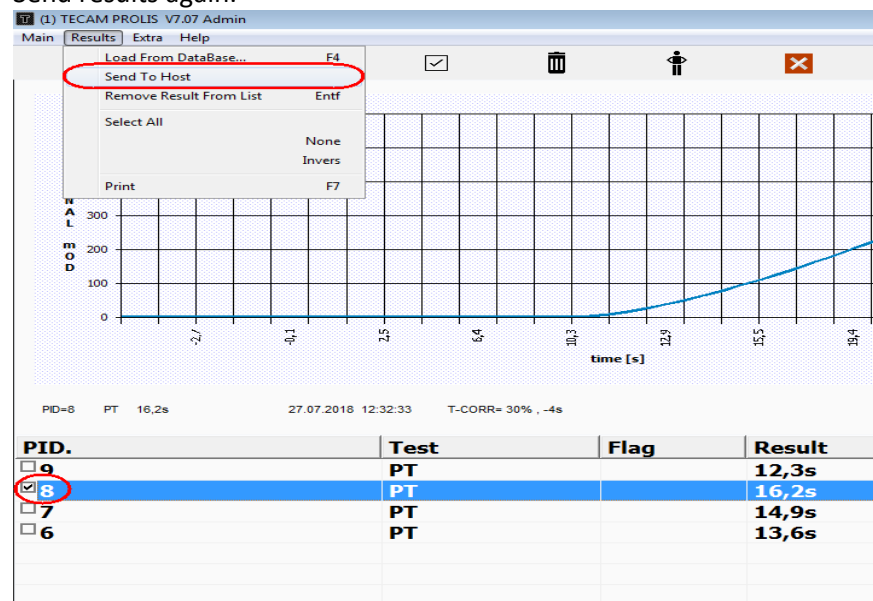
More information about communication and protocol can be read in document "Interface RS232 Tecam".

RS232 (Xoff): Data are sent without any handshake. Data transmission errors are not recognized or handled.

Missing result: If results are received from instrument, but not forward to LIS

- Change Com2 delay to 500ms or more
- Change Com2 baud, 9600Baud
- Change Com2 result format to A4/A6
- Change Com2 protocol to RS232(Xon)

Send results again:



2.9. Connecting to LIS over IP

You can connect fully bidirectionally to any laboratory information system (LIS), which support the ASTM1394 protocol over IP. This means results can be forward to LIS as well as patient orders and information can be received from LIS.

- Connect PC to LAN network
- Enter IP address of LIS server (local host = 127.0.0.1)
- Enter Port number of LIS server.
- Allow port forwarding at your router and firewall
- Open TECAM database menu and click on methods and edit correct HOST-ID or ask LIS administrator to update LIS method ID numbers to TECAM default values (e.g. PT ID= "1")
- Open menu Help/Logfile ASTM in case of problems.

Options

General

Communication

Security

☒ TCP/IP ☐ RS232 (Xon) ☐ RS232 (Xoff) ☐ None

Analyser: 01

Server-IP: 127.0.0.1

Port: 1005

TimeOut(sec): 2

NAK Repeats: 3

Comm Port: 1 Auto

Comm Port: 2 ---

☐ print result automatically

☐ request host automatically

☒ transmit result-1 (s,E)

☒ transmit result-2 (%mg/dL)

☐ transmit result-3 (INR)

☐ transmit curve

☒ use patient information from host

LIS Server (RS232):

- Connect PC to LIS via second RS232 to LIS server
- Set Comm Port 2 to correct number and baud.

TECAM PROLIS V6.01 Admin

	Method	Name	Host-Id.	Profile	Range
Results	PT	PT	1	1	[70-120%] [0,90-1,15INR]
	DFIB	DFIB	2	1	[180-350mg/dL]
Patients	APTT	APTT	3	1	[26-38s]
	FIB	FIB	4	1	[150-350mg/dL]
	AT	AT	5	1	[70-120%]
Report	TT	TT	6	1	[16-24s]
	DD	DD	7	1	[0-150ng/mL]
	HEP	HEP	8	1	[0-0,11E/mL]
QC	PC	PC	9	1	[80-120%]
	PS	PS	10	0	[65-150%]
Calibration	F2	F2	11	0	[70-120%]
	F5	F5	12	1	[70-120%]
	F7	F7	13	0	[70-120%]
Methods	F8	F8	14	1	[70-150%]
	F9	F9	15	0	[70-120%]

Read more information in chapter "Method information of instruments"

2.10. ASTM Logfiles

Below are typical examples:

Send result to LIS:

Analyser sends Header:

4212ms: Analyser <ENQ>

4243ms: Host <ACK>

4243ms: Analyser <STX>1H|\^&|||01^|||||P|97|20150204130006<CR><ETX>EC<CR><Lf>

4243ms: Host <ACK>

Analyser sends patient information:

4243ms: Analyser <STX>2P|1||Musterfrau^Anne^^|Musterfrau^Anne|||<CR><ETX>7B<CR><Lf>

4259ms: Host <ACK>

4259ms: Analyser <STX>3O|1|131210-0026||R<CR><ETX>9E<CR><Lf>

4259ms: Host <ACK>

Analyser sends result-1 = 13.9s:

4259ms: Analyser <STX>4R|1|^PT^^1|13,9|s|0^0|*||W|||20131210144731<CR><ETX>BF<CR><Lf>

4259ms: Host <ACK>

4259ms: Analyser <STX>5M|1|1|^A<CR><ETX>4F<CR><Lf>

4259ms: Host <ACK>

Analyser sends result-2 = 122,3%

4259ms: Analyser <STX>6R|2|^PT^^1|122,3|%|70^120|*||W|||20131210144731<CR><ETX>39<CR><Lf>

4259ms: Host <ACK>

Analyser sends manufacturer information:

4259ms: Analyser <STX>7M|2|1|^A<CR><ETX>52<CR><Lf>

4259ms: Host <ACK>

4259ms: Analyser <STX>0L|1|N<CR><ETX>03<CR><Lf>

4259ms: Host <ACK>

4259ms: Analyser <EOT>

Request an order for patient-ID = "20100001" from LIS:Trace files:

Analyser sends Header:

34352ms: Analyser <ENQ>

34399ms: Host <ACK>

34399ms: Analyser <STX>1H|\^&|||01^|||||P|97|20150203105442<CR><ETX>F1<CR><Lf>

34399ms: Host <ACK>

Analyser sends Request for Patient-ID "20100001"

34399ms: Analyser <STX>2Q|1|^20100001<CR><ETX>9E<CR><Lf>

34399ms: Host <ACK>

34399ms: Analyser <STX>3L|1|N<CR><ETX>06<CR><Lf>

34399ms: Host <ACK>

34399ms: Analyser <EOT>

LIS sends header

36411ms: Host <ENQ>

36411ms: Analyser <ACK>

36427ms: Host <STX>1H|\^&|||01^<CR><ETX>18<CR><Lf>

36427ms: Analyser <ACK>

LIS sends patient information

36442ms: Host <STX>2P|1|||Mustermann^John^^|||1.1.1950<CR><ETX>87<CR><Lf>

36442ms: Analyser <ACK>

LIS sends order information

36458ms: Host <STX>3O|1|20100001|^^^1\^^^3\^^^4|R<CR><ETX>A3<CR><Lf>

36458ms: Analyser <ACK>

LIS send manufacturer information

36473ms: Host <STX>4L|1|N<CR><ETX>07<CR><Lf>

36473ms: Analyser <ACK>

36473ms: Host <EOT>

3. Worklist Screen

3.1. Overview

(This screen is only available for Coatron A series and used to define and send orders to the instrument.)

	Open settings
	Create a ticket
	Print worklist, results
	Select or deselect all orders/results
	Show reaction curve and result report
	Open database
New	Define new worklist
PRFL	Set all orders with new PID to default test default profile
Load	Receive patient barcode from instrument
Repeat	Repeat last worklist
LIS	Request order from LIS
Edit	Edit order
Send	Send worklist to instrument
OFFLINE	Connect with instrument
LIS OFF	Connect with LIS
COM2,SL	System connected over COM2
SN-85006	SN of device
tecam.mdb	Current database. Click here to change
	Show virtual keyboard
 	Scroll Up/Down

Status bar:

ONLINE	LIS OFF	COM1,SL	SN-805006	36	36	38	36	0	tecam.mdb	54 %	Time:2 min
--------	---------	---------	-----------	----	----	----	----	---	-----------	------	------------

- TECAM is connected with instrument SN-805006 over Com1.
- TECAM is not connected to LIS
- At moment a measurement is ongoing. With signals 36mOD, 36mOD,38mOD,36mOD and 0mOD on optical channels 1-6
- Database is "tecam.mdb"
- 54% of worklist is finished. Estimated 2min are required to end f worklist

Create orders

Working with PID

- Enter PID manually or by Barcode and confirm with ENTER
- Click on test field to add or remove the test or
Click on test column header to change test for all PIDs or
Click on "PRFL" to add default profile to all PIDs

Working without Autoseries (1,2,3..)

- Select PO1 and enter any number (e.g. PID=1000)
- Click on test field to add or remove any test
- Click on test field of next rack position. You will see next PID=1001

POS.	PID.	Name	PT	APTT
☒ P01	1		PT	APTT
☒ P02			PT	APTT
☒ P03	3		PT	APTT
☒ P04	4		PT	APTT
☐ P05				
☐ P06				
☐ P07				
☐ P08				
☐ P09				
☐ P10				

click here to (de)activate order

click here to define aPT for all

click here and edit PID

click here to define new PT with PID=5

Select tests with PRFL bottom

POS.	PID.	Name	PT	APTT	FIB
☐ P01	20200001				
☐ P02	20200002				
☐ P03	20200003				
☐ P04	20200004				
☒ P05					
☐ P06					
☐ P07					
☐ P08					
☐ P09					

Click here to add PT,aPTT,FIB,... for all new PIDs

Note: the default profile can be changed with „EDIT worklist“ , see chapter 3.2

Delete a order

POS.	PID.	Name	PT	APTT	FIB
☒ P01	20200001		PT	APTT	FIB
☒ P02	20200002		PT	APTT	FIB
☒ P03	20200003		PT	APTT	FIB
☒ P04	20200004		PT	APTT	FIB
☐ P05					
☐ P06					
☐ P07					
☐ P08					
☐ P09					

Click here and delete PID

Edit orders

	P09	9	PT	APTT
☒	P10			APTT
☒	P11			APTT
☒	P12	12	PT	APTT
☒	P13	13	PT	APTT
☒	P14	14	PT	APTT
☐	P15			
☐	P16			

Receive patient ID from instrument

	POS.	PID.	PT
☐	P01		
☐	P02		
☐	P03		
☐	P04		
☐	P05		

1. Click to LOAD
2. Go to instrument and barcode scan all patient racks
3. Press "ENTER" on instrument to send PID to TECAM
4. Go to TECAM and add tests and send worklist

Request test orders from LIS

☒	P06	20100024	
☒	P07	20100025	
☒	P08		
☒	P09		
☒	P10		
☒	P11	20100029	
☒	P12	20100030	

1. Input patient ID
2. Click on "LIS" (only available with ASTM connection)
3. TECAM will now request each patient to LIS and add automatically the test orders

Add or remove tests

In default just PT,aPTT,FIB,TT,DD is shown. Tests can be removed or added by changing the profile of standard view.

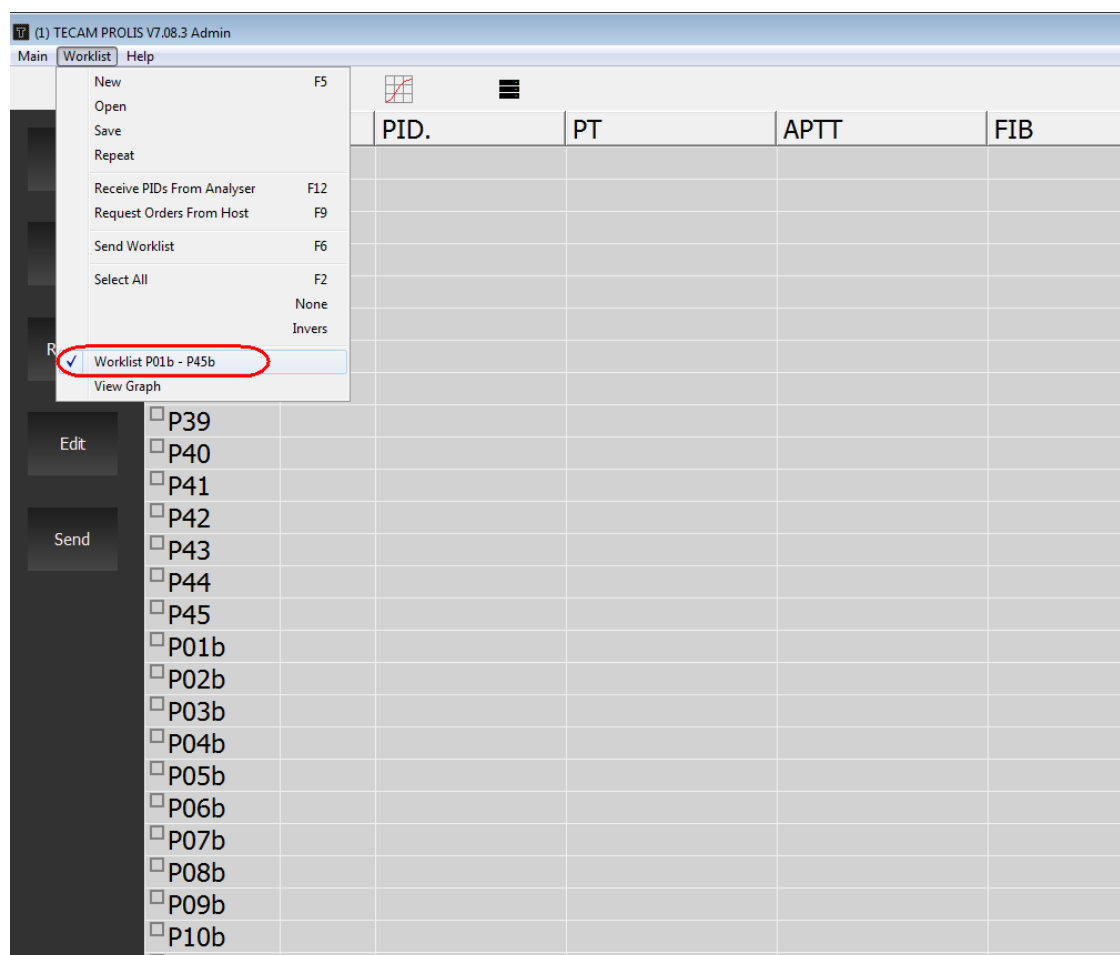
	POS.	PID.	PT	APTT	FIB	TT	DD
New	☐ P01						
	☐ P02						
Load	☐ P03						
	☐ P04						
Repeat	☐ P05						
	☐ P06						
	☐ P07						
	☐ P08						
LIS	☐ P09						
	☐ P10						
	☐ P11						
Edit	☐ P12						
	☐ P13						
	☐ P14						

Add or remove tests:
1. Click on Edit
2. Select tests
3. Confirm as "standard view"

☒ PT	☐ DFIB	☒ APTT	☒ FIB	☐ AT
☒ TT	☒ DD	☐ HEP	☐ PC	☐ PS
☐ F2	☐ F5	☐ F7	☐ F8	☐ F9
☐ F10	☐ F11	☐ F12	☐ PLG	☐ -APC
☐ APCR	☐ LA-S	☐ LA-C	☐ PSF	☐ FDP
PT+APTT		PT+APTT+FIB		
PT+APTT+FIB+TT		PT+APTT+FIB+TT+DD		

(standard view)

Organize two worklist



After activation this option, you see two worklist

Worklist-1: P01 – P45

Sample1 (P01) place into Rack1-P01 to

Sample45 (P45) place into Rack3-P45

Worklist-2: P01b – P45b

Sample46 (P01b) place into Rack1-P01 to

Sample90 (P45b) place into Rack3-P45

Workflow with two worklists

1. Create a new worklist and start with first sample at P01
2. Continue samples until all rack positions are complete (P45)
3. Remove all measured samples from instrument
4. Continue with next sample-46 at P01b and place it at rack1 P01
5. Continue with until last sample-90 (P45b)
6. Sample 91 would require a new worklist

3.2. Edit workload

This screen be opened by

- Double click on order
- Select order (=mouse click) and press key ENTER
- Click on icon “NEW”
- Select order and click on icon “EDIT”

The screenshot shows the (01) Test Order Record interface. Key elements and annotations include:

- Auto-ID 1x:** A slider set to 45, with a callout box stating "Auto set 45 samples".
- PAT=45:** A button next to the slider.
- Auto/Date checkboxes:** Both are checked.
- Patient-ID:** A dropdown menu showing "1006".
- Name (family,given):** An empty text field.
- Date of birth:** An empty text field.
- Age:** An empty text field.
- Sex:** A dropdown menu with a "Set" button.
- Department:** A dropdown menu with a "Set" button.
- Bed:** An empty text field.
- QC checkboxes:** QC, HiSense, Micro, and STAT are all unchecked.
- Test Selection Grid:** A grid of checkboxes for various tests. PT, TT, APTT, FIB, and F2 are checked. A callout box points to the "display only profile tests" checkbox, which is unchecked.
- Test Profiles:** Three dropdown menus showing "PT+APTT", "PT+APTT+FIB", and "PT + APTT + FIB + TT". A callout box points to the "PT + APTT + FIB + TT" profile, stating "click here to save profile".
- Recent Orders:** A list of recent orders (P01, P02, P03) with a callout box stating "recent orders".
- Buttons:** OK, Yes To All, Delete, and Exit.

Auto-ID:

- Auto: Activate if you don't use patient id numbers. Auto-ID is 1,2,3,4..... You can overwrite the number in the field Patient-ID anytime.
- Date: Activate to add date information to Auto-ID (e.g. "20152901_00001"). This allows later to search and find easier this result in the database.
- Auto-ID 1x: Slide to 1-45 samples, if you want to define more than one order.
- PAT=12: Run 12 samples

Patient-ID:

- Uncheck "Auto", if you are using patient id numbers (e.g. barcode)
- Enter Patient-ID by barcode or manually.
- Add Patient Information
- Define coagulation tests
- Patient-ID list: recent 9 quality controls will be listed

Display profile:

- Display only profile tests which are define as "standard view".

Yes To All:

- Allows to set or reset tests for all patients at once

Profile tests:

- Click on profil to set for patient
- Click on arrow to define a profil
- Standard view: Define the tests displayed after TECMA startup

QC:

- Check “QC” if sample is a control plasma.
- Define or change name and control ranges
- Click right mouse to open context menu and load or save a control range file.

QC-Range	(s,E)	(%U,R)	(INR)
PT:=	11.0-18.0	78.0-125.0	0.790-1.270
DFIB:=	0.200-0.400	230-400	0.000-0.000
APTT:=	26.0-39.0	0.80-1.20	0.000-0.000
FIB:=	0.000-0.000	230-400	0.000-0.000
AT:=	0.000-0.000	75.0-125.0	0.000-0.000
TCT:=	12.7-20.1		
DD:=	0.000-0.000		
HEP:=	0.000-0.000		
PC:=	0.000-0.000		
PS:=	0.000-0.000		
F2:=	0.000-0.000		
F5:=	0.000-0.000		
F7:=	0.000-0.000		
F8:=	0.000-0.000		
F9:=	0.000-0.000		
F10:=	0.000-0.000	75.0-125.0	0.000-0.000
F11:=	0.000-0.000	75.0-125.0	0.000-0.000

STAT: (only enabled for Coatron A6 and Coatron A6 Plus)

- Status of order (Routine or STAT). STAT orders will run as soon as possible.

HiSense: (only enabled for Coatron A6 and Coatron A6 Plus)

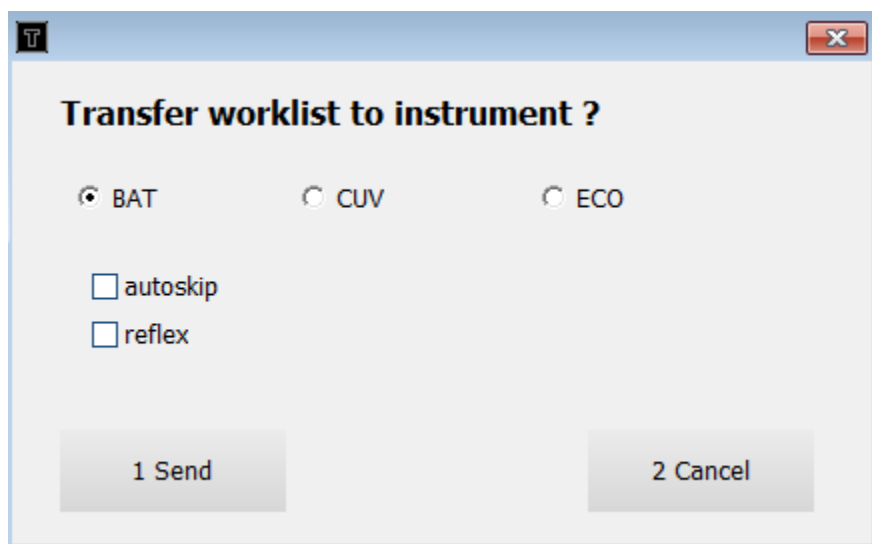
- Run sample in a very high sensitivity mode. This allows to receive results for critical samples like lipemic or high diluted. Apply HiSense for each sample, which was measured as “+++”

MICRO: only enabled Coatron A6 Plus

- Identify sample tube as “Micro Tubes” , like Eppendorf Safe Lock 2mL. Only 100µL plasma is required for micro tube and Coatron system do not crash during level sensing into tube in case that less volume is installed-



3.3. Send worklist



Mode of worklist

- BAT = Run worklist test by test (First all PT, then all aPTT,..). This mode allows minimum consumption of cleaner and rinse and maximum sample throughput. But patient results are provided only at end of worklist.
- CUV = Run worklist cuvette wise (First cuvette PT, second cuvette aPTT,..). This mode combines both benefits of BAT and SEL. It is nearly as fast and economic as BAT and provide patients results during worklist
- ECO = The worklist is run like BAT, but all samples and reagents are dispensed in single shot mode (1xinput, 1xoutput,wash, next input). This allows best accuracy and lowest consumption of reagent. The throughput will drop by around 30%

Multi shot mode = 1x input, 6xoutput, wash, next input. In this mode the instrument requires additionally 40µL of reagent to ensure accurate volumes in the cuvette)

Autoskip

Instrument will continue with next test or sample if reagent is run out. Otherwise it will interrupt the worklist and wait for reagent replacement.

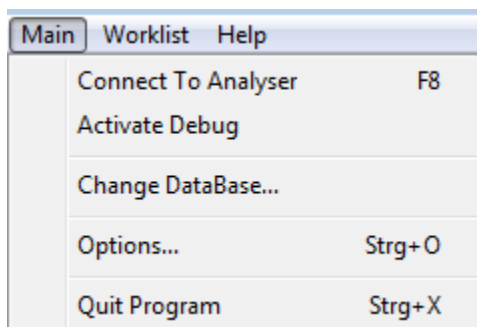
Reflex

Instrument will repeat some orders automatically, if no or critical result is measured.

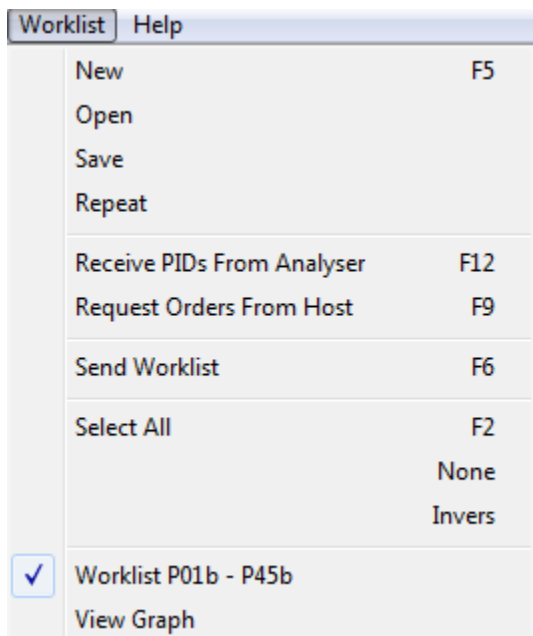
Start

Send worklist to instrument and start measurement

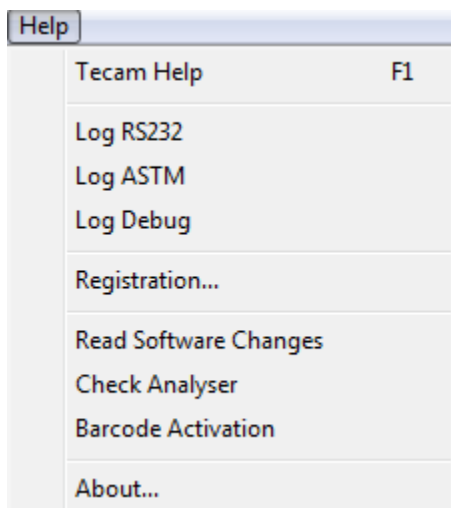
3.4. Menu functions



- Connect or disconnect Analyser & LIS
- Trace communication with XYZ system
- Change or create database
- Open options menu
- Quit program

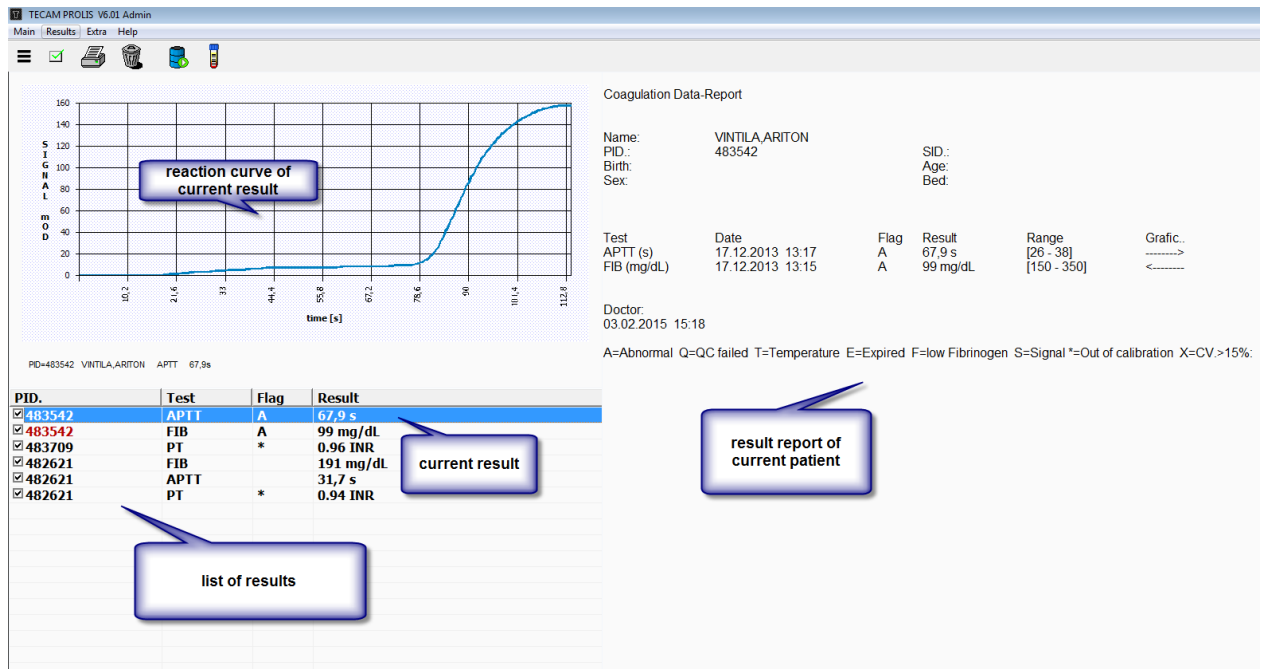


- Create new worklist
- Open older worklist from file
- Save current worklist to file
- Repeat last worklist
- Scan patient barcode on instrument
- Receive orders from host (only ASTM)
- Send worklist to Coatron
- Select: Activate or deactivate all orders
- Activate two worklist mode
- Show reaction curve of mouse pointed result



- Open this PDF document. A PDF reader is required.
- Open Logfile to see communication between Coatron (RS232) , LIS (ASTM) or XYZ system (Debug)
- Enter TECAM license information
- Inform about TECAM modifications
- Receive status report of analyser
- Input ticket or service barcode information to activate consumables (cuvette, rinse) or perform special service (change SN)

4. Result Screen



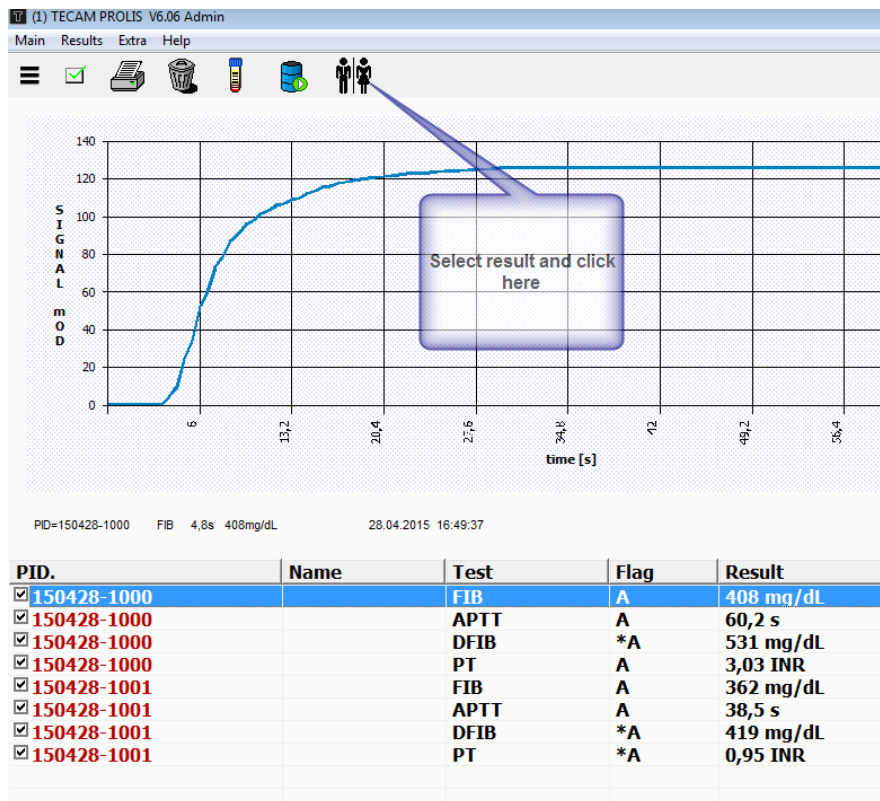
Menu Result:

- Load From Database: Open database and reload results
- Send to host: Send all selected results to LIS
- Remove from list: Remove all selected results from list
- Select: Select all, none or invers results
- Print: Print selected results

Menu Extra:

- Show reaction curve with auto scale: Zoom automatically or manually
- Save, Copy, Print: Save to file, copy to clipboard or print
- Report all units: Display all units in report (e.g. Sec + INR + %). Specific units can be selected in "Database/Methods" for patients and "Database/QC file" for controls,
- Receive average: Show only mean values in report

4.1. Input patient information



Add new patient record

Patient-ID: 150428-1000

Name: Mustermann, Max

Date of birth:

Department:

Sex:

Bed:

☐ QC

OK Cancel Sync

Enter patient information or select "SYNC" to receive it from LIS

4.2. Input ticket information

Voucher:

Included to each box of cuvettes or rinse solution contains.
Required to create a ticket

Ticket:

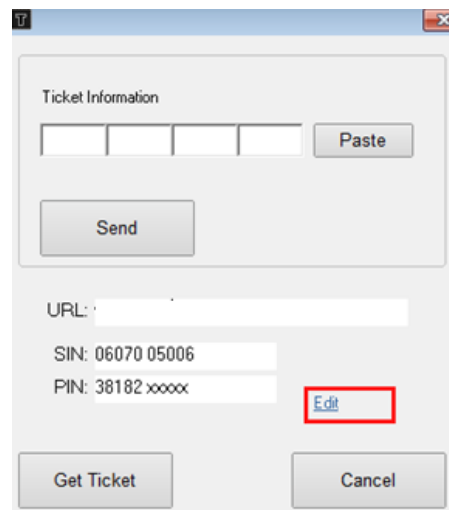
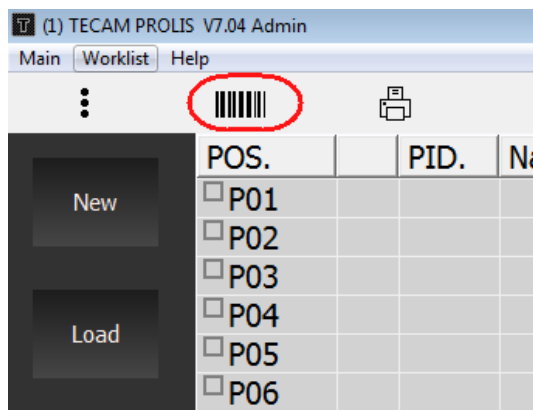
Includes information to

- Activate of box of cuvettes
- Activate of box of rinse tanks
- Reset service interval

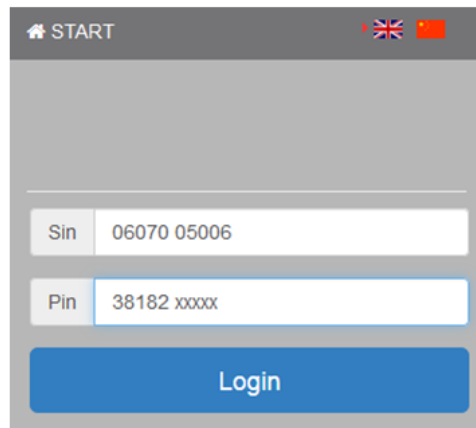
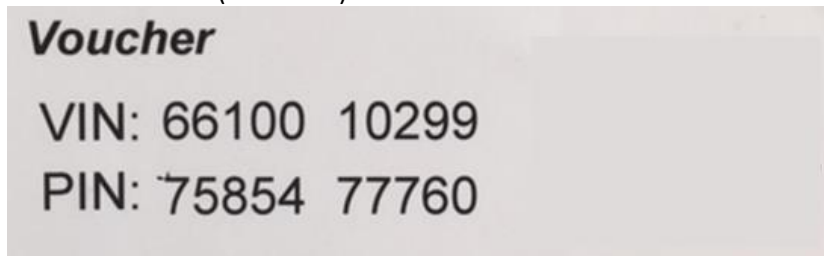
The ticket itself can used only one time and one instrument.

Create a ticket:

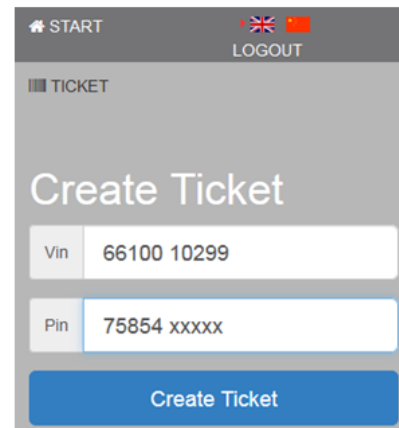
- 1) Login to Ticket system www.xxxxxx-reg.com. The URL link can be seen during bootup of analyser or when click on barcode icon (see b)
 - a. Connect TECAM with device
 - b. Click on barcode icon
 - c. Use QR code with your mobile device or select “Get ticket”, if TECAM is connected to internet



- 2) Enter Voucher information (VIN + PIN)

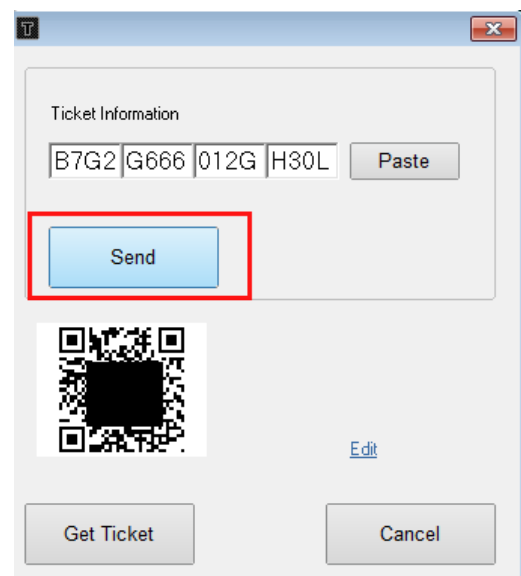


A mobile app login screen. At the top, it says "START" with a home icon and flags for the UK and China. Below are two input fields: "Sin" with the value "06070 05006" and "Pin" with the value "38182 xxxxx". A blue "Login" button is at the bottom.



A mobile app screen for creating a ticket. At the top, it says "START" with a home icon and flags for the UK and China, and a "LOGOUT" button. Below is a "TICKET" section with the title "Create Ticket". There are two input fields: "Vin" with the value "66100 10299" and "Pin" with the value "75854 xxxxx". A blue "Create Ticket" button is at the bottom.

- 3) Create ticket and transfer to instrument



A software dialog box titled "Ticket Information". It contains a text field with the value "B7G2|G666|012G|H30L" and a "Paste" button. Below this is a blue "Send" button, which is highlighted with a red rectangle. Underneath the "Send" button is a QR code. At the bottom of the dialog are three buttons: "Get Ticket", "Edit" (a link), and "Cancel".

[Start](#)   [Logout](#)

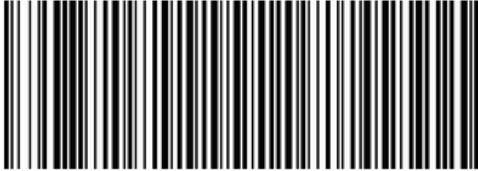
Ticket Information

Product: Clean-B 1.25L

Sin: 0607005006

Quantity: 9

Code: B7G2 G666 012G H30L



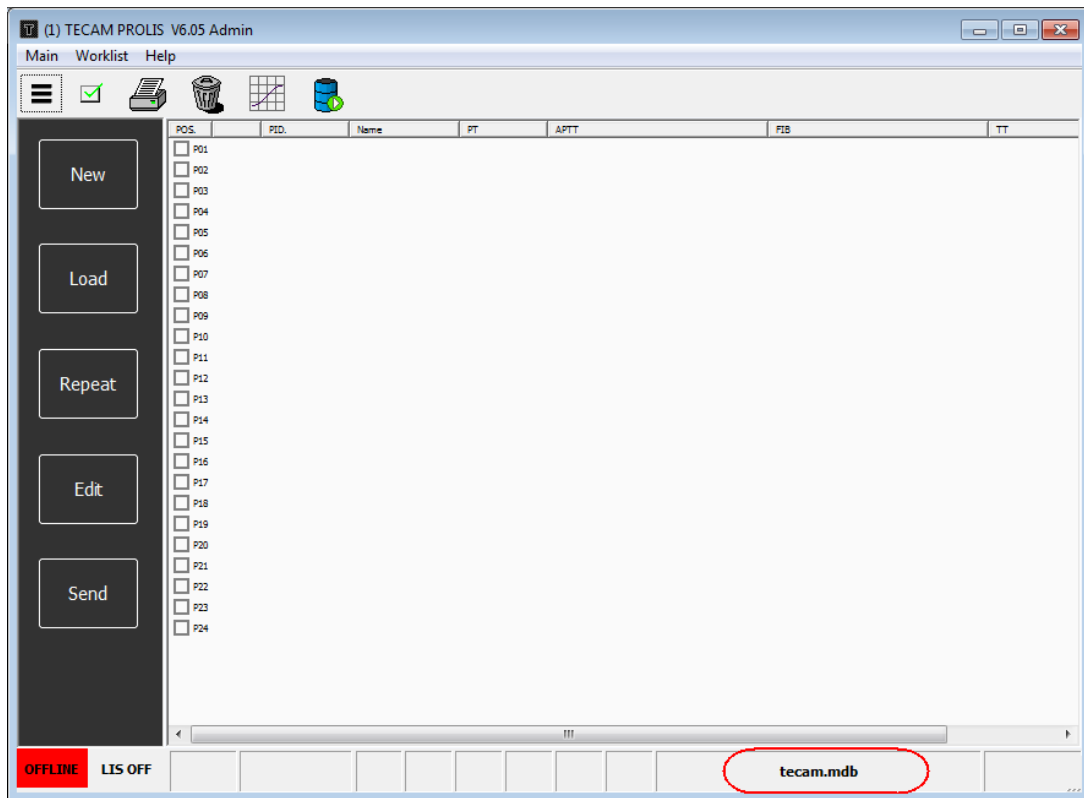
 Save ticket to PDF

 Copy Code to Clipboard

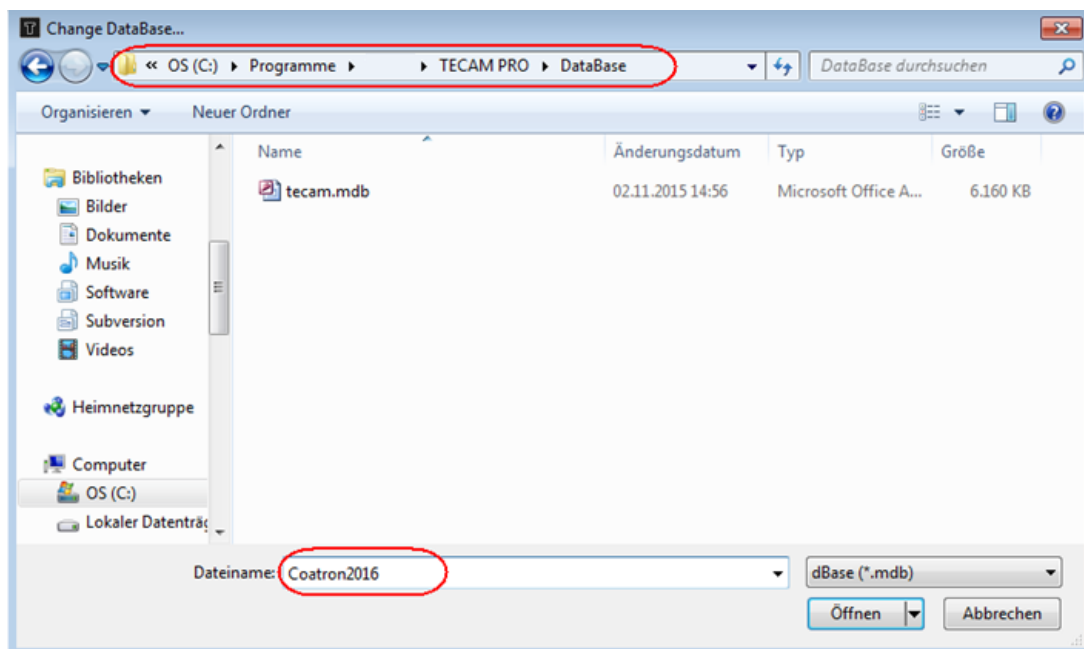
Transfer ticket to device:
-Copy code top clipboard and
paste to TECAM. Now you can
send it to the instrument.

5. Database Administration

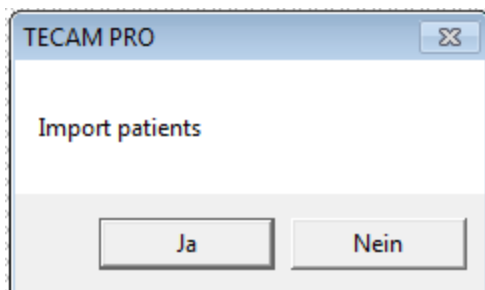
5.1. Creating database



Click to database in the statusbar



Select or create any new directory and enter any name of database.

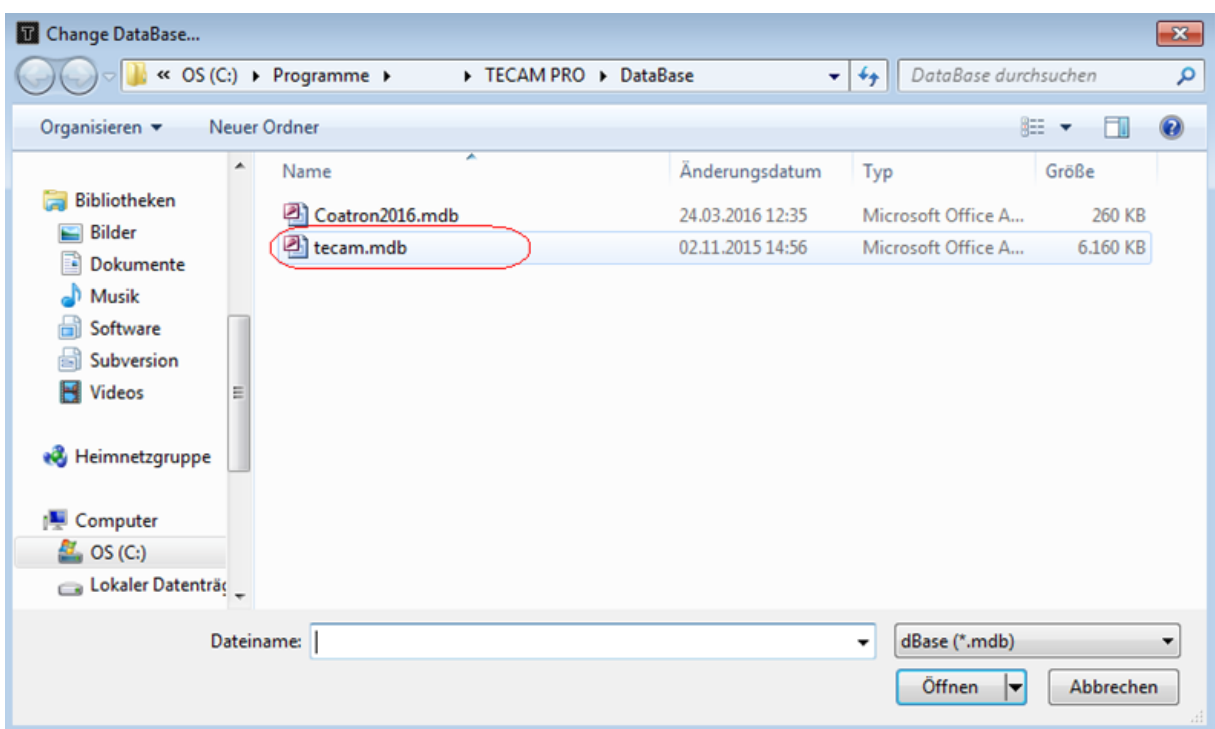


Select yes, if you want to copy the patient ID+name from current database to new database.

5.2. Change database



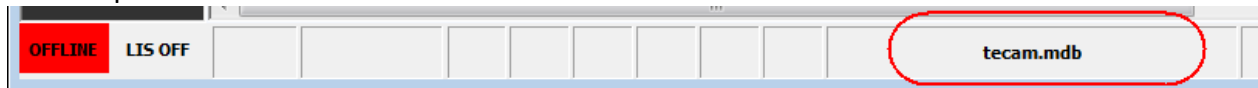
Click to name of database within status



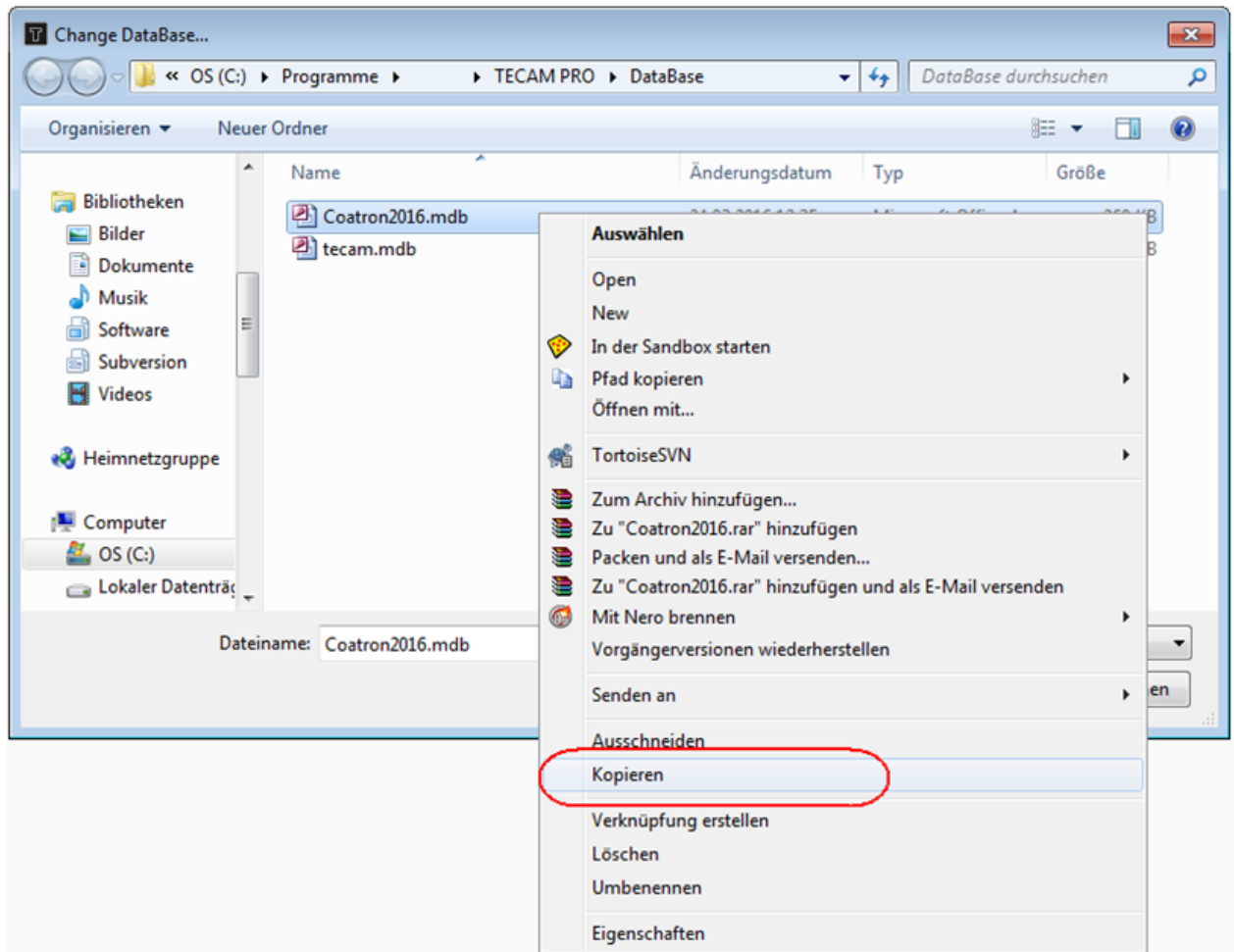
Select any database and confirm

5.3. Backup database

Manual procedure:



Click to name of database within status



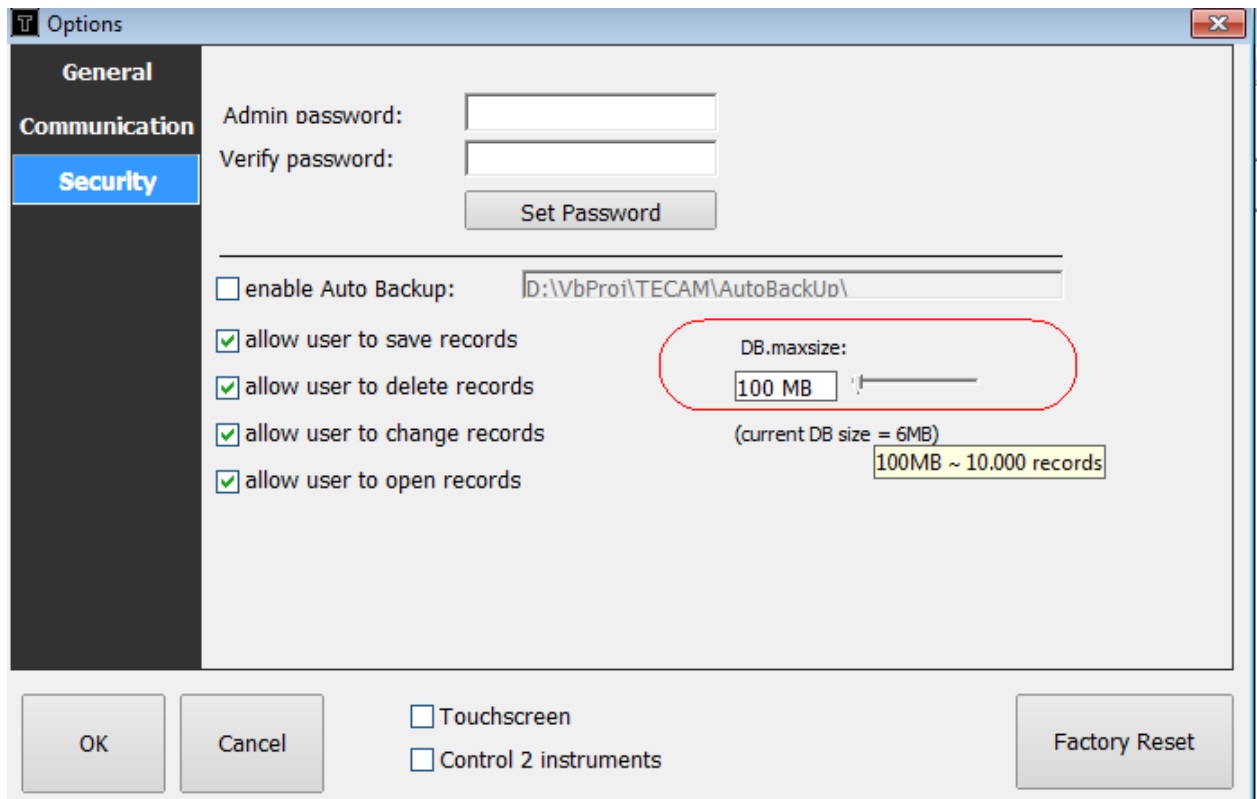
- Click on database with right mouse key and select Copy.
- Change to target directory
- Select "Paste"

Automatic procedure:

- Open Options\Security and check Auto Backup.

5.4. Resize database

The performance of TECAM may decrease with the size of database depending on the configuration of processor and memory. TECAM allows to limit the database and keep only recent results in database



If maxsize is set below to current db size , then TECAM will ask to delete older result with next restart.

If da size get greaterthen maxsize over time, than TECAM will ask at start to increase the database or delete results !

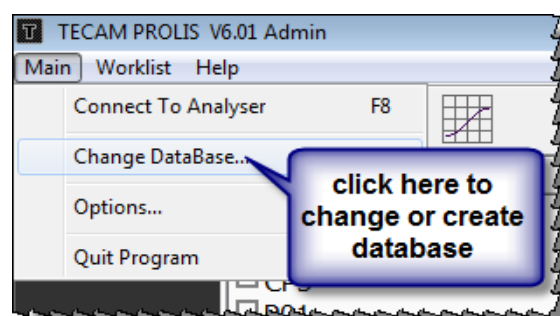
TECAM PROLIS V6.01 Admin

Main Worklist Help

Icons: List, Checkmark, Printer, Trash, Database, Graph

click here to open database

POS.	PID.
☐ CP1	
☐ CP2	
☐ CP3	
☐ P01	



TECAM PROLIS V6.00 Admin

Results

Patients

Report

QC

Calibration

Methods

n=309 DB=3MB (2%)

Coagulation Database

Date	Time	Patient-ID	Sample-ID	Name	QC	Test	Lot	Result1	Scale1	Result2	Scale2	Result3	Flag	Wa
15.12.2014	15:19:01	EV1	01004-01	Normal Patient		FIB	10512000	13,3	s	210,0	mg/dL			
15.12.2014	15:19:01	EV1	01004-01	Normal Patient		FIB	10512000	12,0	s	242,0	mg/dL			
15.12.2014	15:19:00	EV1	01004-01	Normal Patient		FIB	10512000	12,3	s	234,0	mg/dL			
15.12.2014	15:18:59	EV1	01004-01	Normal Patient		FIB	10512000	12,5	s	229,0	mg/dL			
15.12.2014	15:18:59	EV1	01004-01	Normal Patient		FIB	10512000	11,9	s	247,0	mg/dL			
15.12.2014	15:18:58	EV1	01004-01	Normal Patient		FIB	10512000	11,9	s	246,0	mg/dL			
15.12.2014	15:15:27	EV1	01004-01	Normal Patient		FIB	10512000	13,3	s	212,0	mg/dL			
15.12.2014	15:15:26	EV1	01004-01	Normal Patient		FIB	10512000	12,8	s	222,0	mg/dL			
15.12.2014	15:15:25	EV1	01004-01	Normal Patient		FIB	10512000	12,4	s	234,0	mg/dL			
15.12.2014	15:15:25	EV1	01004-01	Normal Patient		FIB	10512000	12,3	s	236,0	mg/dL			
15.12.2014	15:15:24	EV1	01004-01	Normal Patient		FIB	10512000	11,7	s	252,0	mg/dL			
15.12.2014	15:15:23	EV1	01004-01	Normal Patient		FIB	10512000	11,8	s	249,0	mg/dL			
15.12.2014	15:08:16	20	01003-02			FIB	10512000	20,2	s	118,0	mg/dL			
15.12.2014	15:08:15	20	01003-02			FIB	10512000	22,8	s	99,0	mg/dL			
15.12.2014	15:08:14	19	01003-01			FIB	10512000	11,8	s	249,0	mg/dL			
15.12.2014	15:08:13	19	01003-01			FIB	10512000	12,6	s	227,0	mg/dL			
15.12.2014	15:02:59	STANDARD 4	01002-04	Calibrator 4		FIB	10512000	28,5	s					
15.12.2014	15:02:58	STANDARD 4	01002-04	Calibrator 4		FIB	10512000	25,6	s					
15.12.2014	15:00:59	STANDARD 3	01002-03	Calibrator 3		FIB	10512000	20,1	s					
15.12.2014	15:00:58	STANDARD 3	01002-03	Calibrator 3		FIB	10512000	21,1	s					
15.12.2014	15:00:57	STANDARD 2	01002-02	Calibrator 2		FIB	10512000	12,7	s					
15.12.2014	15:00:56	STANDARD 2	01002-02	Calibrator 2		FIB	10512000	12,2	s					
15.12.2014	15:00:56	STANDARD 1	01002-01	Calibrator 1		FIB	10512000	7,7	s					
15.12.2014	15:00:55	STANDARD 1	01002-01	Calibrator 1		FIB	10512000	7,7	s					
15.12.2014	13:53:44	26	00067-02			TT		16,0	s					
15.12.2014	13:53:43	25	00067-01			TT		16,9	s					
15.12.2014	13:46:42	26	00066-02			TT		27,6	s					
15.12.2014	13:46:41	25	00066-01			TT		27,8	s					
15.12.2014	13:43:24	26	00065-02			TT		22,8	s					

Date,Time:	Date Time of result
Patient-ID:	Patient Identification number. This number must be unique in the database.
Sample-ID:	Sample Identification number. This number is set always by the instrument and contains two information, which are delimited with '-' . E.g. "001135-005" means worklist-id= "1135" ; rack position = P05
Name:	Name of patient. Click on this field to add or edit the name
QC:	Mark the sample as patient or quality control
Test:	Name of result method
Lot:	Lotnumber of reagent.
Result1-3:	Results of methods

Database:

- Show records in details view:
All selected results will be reloaded into result screen (see chapter 4).
- Update record
This will change every change in the database
- Delete record: Select records (patient or result) will be deleted from database
- Remove completely: Patient and all corresponding results will be removed from database
- Compress Database: Delete operation will cluster the database. Compress it to remove the clusters.
- Export/Export: Export the tables to Excel , HTML or TXT
- Filters: Apply predefined filters (e.g. show all results from today)

Database:

- Clear filter: Remove all filters from table
- Worklist: Show all results from current worklist. The worklist-id information is stored in the data field "Sample-ID"
- New: Show all results from today, which are not reported yet. Click on report to mark the results as "reported"
- Today: Show all results from today
- Recent days: Enter period and show recent days (show recent 30days)
- Recent values: Enter period and show recent values (show recent 30 results)
- Period: Enter date for begin and end (e.g. Show results from 1.1.2015 to 31.12.2015)
- QC filter:

First click on result, which you want to filter for QC

n=2194 DB=21MB (10%)									
Coagulation Database									
	Date	Time	Patient-ID.	Sample-ID	Name	QC	Test	Lot	Re
	20.11.2014	17:32:07	5	1135-6		☐	PT	10232056	5,8
	20.11.2014	17:32:06	4	1135-5		☐	PT	10232056	5,8
	20.11.2014	17:32:05	3	1135-4		☐	PT	10232056	5,8
▶	20.11.2014	17:32:05	2	1135-3	TECONTROL A	☒	PT	10232056	5,8
	20.11.2014	17:32:04	1	1135-2		☐	PT	10232056	5,8
	20.11.2014	17:32:03	1	1135-1		☐	PT	10232056	5,8

The QC-filter writes now the current patient-id and test into the filter bar. Additionally you can define the period of recent values.

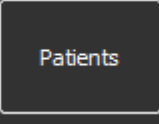
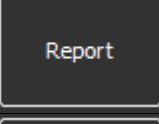
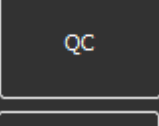
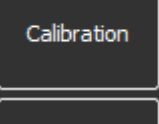
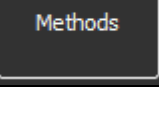
n=1 DB=21MB (10%)									
Coagulation Database									
	Date	Time	Patient-ID.	Sample-ID	Name	QC	Test	Lot	
			=2		TECONTROL A	-	=PT		
▶	20.11.2014	17:32:05	2	1135-3	TECONTROL A	☒	PT	10232056	

The QC-filter can be also applied by double-click on the result !!

Top button bar:

button	description
	Database menu
	Database filter
	Check box
	Show selected records in details,
	Allow administrator to delete selected results from database.
	Update database.
	Input or change patient information.
	Quit current screen.

Left button bar:

	Open table "results"
	Open table "patients"
	Report results
	Run statistical analysis
	Open calibration of methods
	Configure methods like name, test host id and test ranges, etc.

6.2. How to filter results

The filter bar is a very powerful tool to select or find a result.

n=3		DB=21MB (10%)							
Coagulation Database									
	Date	Time	Patient-ID.	Sample-ID	Name	QC	Test	Lot	Result1
					T		PT		>10 & <15
▶	17.12.2013	13:32:22	483602		TURDA,GHEORGHE	☐	PT	10231882	14,5
	16.12.2013	16:16:57	482621		TEMISTOCLE,CATALIN	☐	PT	10231882	14,8
	17.12.2013	12:27:32	483124		TANASE,NADIA	☐	PT	10231882	13,2

You can filter all data fields in combination and apply even operators like = < > & |
Predefined filters will help to define a certain period of results (e.g. recent 7 days)

Examples: Test= "P": show all tests beginning with "P" or "p"
 Test= "=PT": show all tests equal to PT
 Test= "PT | APTT": show all results equal to PT or APTT
 Result1 = ">10 & <15" show all results greater 10s and smaller 15s

6.3. Patient and QC information

New patients can be defined in 4-ways:

1. Receiving patient information from LIS
This requires LIS connection and feature "Use patient information from host" (see chapter 2)
2. Within Test Order Record (see chapter 3).

The screenshot shows a software window titled "Test Order Record". At the top, there is a section for "Auto-ID 1x" with a slider and buttons "<<" and ">>". Below this are checkboxes for "Auto" and "Date". The main section contains several input fields: "Patient-ID:" with a dropdown menu showing "1234568" and a "QC" checkbox; "Name (family,given):" with a text box and a "STAT" checkbox; "Date of birth:" with a date picker and "Age:" with a text box; "Sex:" with a dropdown menu and a "Set" button; "Department:" with a dropdown menu and a "Set" button; and "Bed:" with a text box.

3. Directly in the table "results"

n=2194 DB=21MB (10%)

Coagulation Database

	Date	Time	Patient-ID.	Sample-ID	Name	QC	Test
▶	20.11.2014	17:32:07	5	1135-6	write name	☒	PT
	20.11.2014	17:32:06	4	1135-5		☐	PT
	20.11.2014	17:32:05	3	1135-4		☒	PT

4. In the table “patients”

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n=27 DB=21MB (10%)

click here to add new patient

click here

select or filter patients

Patient-ID.	Name	Birth	QC	Sex	Department	Bed
481746	CEAUSU,DUMITRESCU		☐			
482489	CIOCAU,INA		☐			
482886	CONSTANTINESCU,CONSTANTIN		☐			
483154	CASCAVAL,ADRIAN		☐			
483370	COSERIU,VASILE					
483462	CROITORU,EUGENIU					
483619	CARLOANTA,FLORIN					
483674	COMAN,IULIANA					
483687	CONSTANTIN,DOREL		☐			
483746	COSTEA,ELENA		☐			
489440	COCIU,		☐			
491595	CAPRA,VASILICA		☐			
491652	CASAS,MARIANA		☐			
492316	CRISTEA,ION		☐			
492494	CHERBEL,MARIUS		☐			
492637	CIRCIUMARU,IOANA		☐			
492648	CONSTANTINESCU,DANIELA		☐			
494626	CRISTEA,ION		☐			
494665	CIRCIUMARU,IOANA		☐			
494927	COTICIU,OVIDIU		☐			
495103	CARAVELA,MARIA		☐			
495142	CIOCA,ILIANA		☐			

patient memo field

Patient Information File

481746
CEAUSU,DUMITRESCU,

Bed: -

=====

	Click here to delete patient
	Update database.
	Click here to add new patient.

6.4. How to define QC ranges

About ID number of controls:

You should always use the lotnumber of control vial as Patient-ID and add the name of the control

E.g.	96002014	Control,N
E.g.	96002051	Control,N
E.g.	96102015	Control,A
E.g.	96102052	Control,A

This gives you later the chance to analyze the QC with two filters:

“show recent 30 PT of LOT 96002014” or “show recent 30 PT of Control,N”

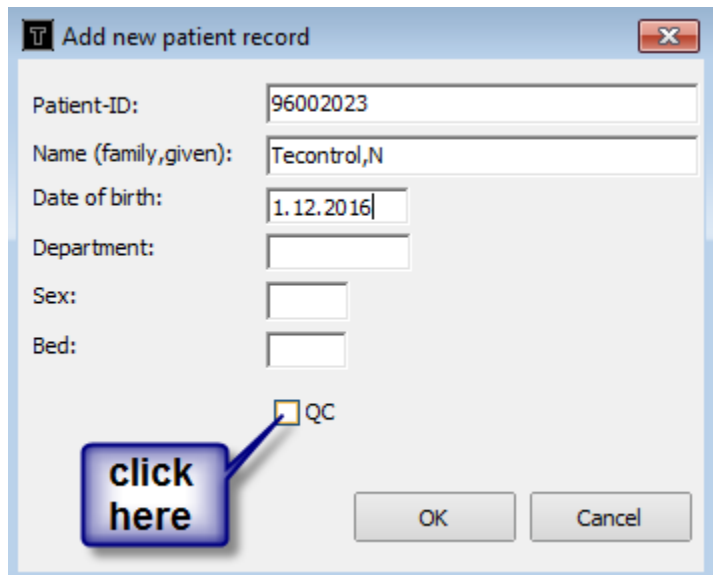
About control ranges:

A certificate of analysis is included in each box of control plasma. Here you can read the target values and ranges of control plasma. Transfer these values later in the database.

Add or edit control plasma information to database:

Quality controls (QC) are handled equal as patients. Only the database field "QC" is set to TRUE.

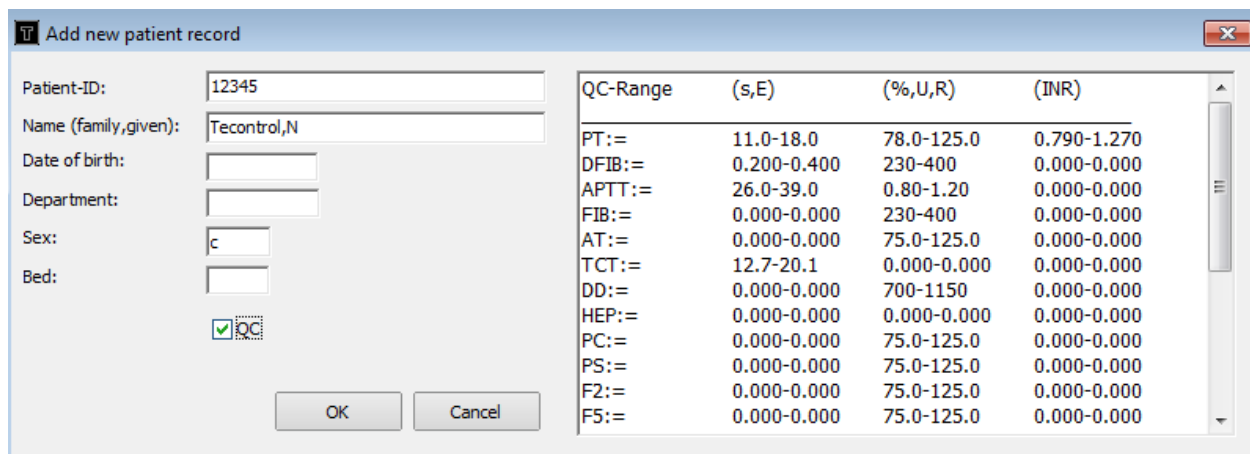
	Click here to add new QC
---	--------------------------



Name

-  Control,N_0001.qc
-  Default_TeControl_A.qc
-  Default_TeControl_N.qc
-  QC2010_A4_ACP.qc
-  QC2010_A4_NCP.qc
-  Tecontrol A PLUS_13.qc
-  TEControl A_1.qc
-  Tecontrol A_96101906.qc
-  Tecontrol,N_96001905.qc

Enter lotnumber , name and expiry date of control plasma and click on "QC". Now you can load or cancel a control file.



QC-Range	(s,E)	(%,U,R)	(INR)
PT:=	11.0-18.0	78.0-125.0	0.790-1.270
DFIB:=	0.200-0.400	230-400	0.000-0.000
APTT:=	26.0-39.0	0.80-1.20	0.000-0.000
FIB:=	0.000-0.000	230-400	0.000-0.000
AT:=	0.000-0.000	75.0-125.0	0.000-0.000
TCT:=	12.7-20.1	0.000-0.000	0.000-0.000
DD:=	0.000-0.000	700-1150	0.000-0.000
HEP:=	0.000-0.000	0.000-0.000	0.000-0.000
PC:=	0.000-0.000	75.0-125.0	0.000-0.000
PS:=	0.000-0.000	75.0-125.0	0.000-0.000
F2:=	0.000-0.000	75.0-125.0	0.000-0.000
F5:=	0.000-0.000	75.0-125.0	0.000-0.000

Update to correct control ranges here or next screen.

n=11							
Patient Database							
Patient-ID.	Name	Birth	QC	Sex	Department	Bed	
1	Sample-1	10.11.1968	☒	c	uro	1234	
2	Sample-2		☐				
20100001	Mustermann,John	19.08.2012	☐				
20100002	,		☐				
20100003	,		☐				
20100004	Sample,4		☐				
20100006	,		☐				
20100007	,		☐				
20100009	,		☐				
20100021	Patient,2		☐				
▶ 96002023	Tecontrol,N	01.12.2016	☒	c			

QC-Range	(s,E)	(%,U,R)	(INR)
PT:=	11.2-16.0	77.0-111.0	0.85-1.22
DFIB:=	0.200-0.400	200-400	0.000-0.000
APTT:=	28.6-41.2	0.000-0.000	0.000-0.000
FIB:=	0.000-0.000	210-328	0.000-0.000
AT:=	0.000-0.000	75.0-125.0	0.000-0.000
TCT:=	14.4-20.6	0.000-0.000	0.000-0.000
DD:=	0.000-0.000	163-338	0.000-0.000
HEP:=	0.000-0.000	0.000-0.000	0.000-0.000
PC:=	0.000-0.000	75.0-125.0	0.000-0.000
PS:=	0.000-0.000	75.0-125.0	0.000-0.000
F2:=	0.000-0.000	75.0-125.0	0.000-0.000
F5:=	0.000-0.000		0.000-0.000
F7:=	0.000-0.000	New	0.000-0.000
F8:=	0.000-0.000	Load	0.000-0.000
F9:=	0.000-0.000	Save	0.000-0.000
F10:=	0.000-0.000		0.000-0.000
F11:=	0.000-0.000	Copy	0.000-0.000
F12:=	0.000-0.000	Paste	0.000-0.000
PLG:=	0.000-0.000		0.000-0.000
APCR:=	0.000-0.000	Insert data + time	0.000-0.000
LA screen:=	0.000-0.000		0.000-0.000
LA confirm:=	0.000-0.000	Print memo	0.000-0.000

Click right mouse button to open context menu:

- Edit control ranges for each unit.
- Keep range to 0.000 -0.000 if unit is not used for result reporting. Read about “Report all units” in chapter “Create a report”
- Click right mouse for context menu
 - New: Create a new control file
 - Load: Load QC ranges from file
 - Save: Save QC ranges to file
 - Copy: Copy QC ranges to clipboard
 - Paste: Load QC ranges from clipboard
 - Insert date: not available for QC sample
 - Print: Print memo field

6.5. Create a report

What you see in the table, is what you get on the report !!!!

TECAM PROLIS V6.01 Admin

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🗄️

👤👤

❌

Results

Patients

Report

Calibration

Methods

n=2194DB=21MB (10%)

Coagulation Database

	Date	Time	Patient-ID.	Sample-ID	Name
▶	20.11.2014	17:32:07	5	1135-6	
	20.11.2014	17:32:06	4		
	20.11.2014	17:32:05	2	1135-3	TECONTROL A
	20.11.2014	17:32:04	1	1135-2	
	20.11.2014	17:32:03	1	1135-1	
	20.11.2014	15:23:23	133	1134-24	
	20.11.2014	15:23:23	133	1134-29	
	20.11.2014	15:23:22	133	1134-25	
	20.11.2014	15:23:21	151	1134-23	
	20.11.2014	15:23:21	150	1134-22	
	20.11.2014	15:23:20	149	1134-21	

click here

apply filters or use predefined report filters

Title: Coagulation Data-Report

Header 1:

Header 2:

Header 3:

Header 4:

Header 5:

Footer: Doctor:

Comment: Comment:

☐ Text centered ☒ Grafik left

Pic-X 0,2 Pic-Y 0,2

Grafic.. Font..

☐ New page per patient ☒ New page per sample ☐ New page per day ☐ Report all units ☐ Din A5

☒ New ☐ Worklist ☐ No

Cancel OK

Headlines:	Define up to 5 headlines , foot line to your results report	
Font:	Define font name and size.	
Grafic:	Add a graphic to your report	
Text centered:	Activate if headlines should be centered in the report	
Grafic left:	Show graphic on the top left side. Otherwise it is top right side.	
PIC- XY:	Zoom Grafic	
New page per patient:	Print results of each patient on a new page. The patient is defined by the patient-ID (PID), which is received from sample barcode or LIS.	
New page per sample:	Print results of each sample on a new page. The sample is defined by the sample-ID, which is automatically generated by the Coatron system.	
New page per day:	Print results of each day on a new page.	
Din A5:	Print report on small Din A5 format. Otherwise the format is Din A4.	
Filter:	New:	Report only new results from today
	Worklist:	Report last worklist of instrument
	No:	Do not apply a data filter
Report all units:	The Coatron sends up to three different results for each method (e.g. PT sec + % + INR)	
	Check , if all available results (unit) should be included to the result report	
	Uncheck, if only selected units should be reported.	
	How to disable the units:	
	For patients:	open database and click on „Methods” and change field “Range”. Do not define unit to disable. Read chapter “database” for more information.
	For controls:	open database and click on “Patients”, select ID number of control and change QC ranges. Set unit to 0.000-0000 to disable. Read chapter “Create a report” for more information.

6.6. Statistical analysis

- The QC functions can be applied on patient and QC results. You could e.g. show the recent 30 INR results of a patient in a graphic and see any trends.
- For statistical analysis it requires at least two values
- For Westgard analysis it requires a correct patient-ID, test and qc-ranges . For this the QC filter is helpful.

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Icons: Menu, Sun, Checkmark, Refresh, Trash, Database, Users, Error

Results
Patients
Report
QC

n=30 DB=4MB (2%)

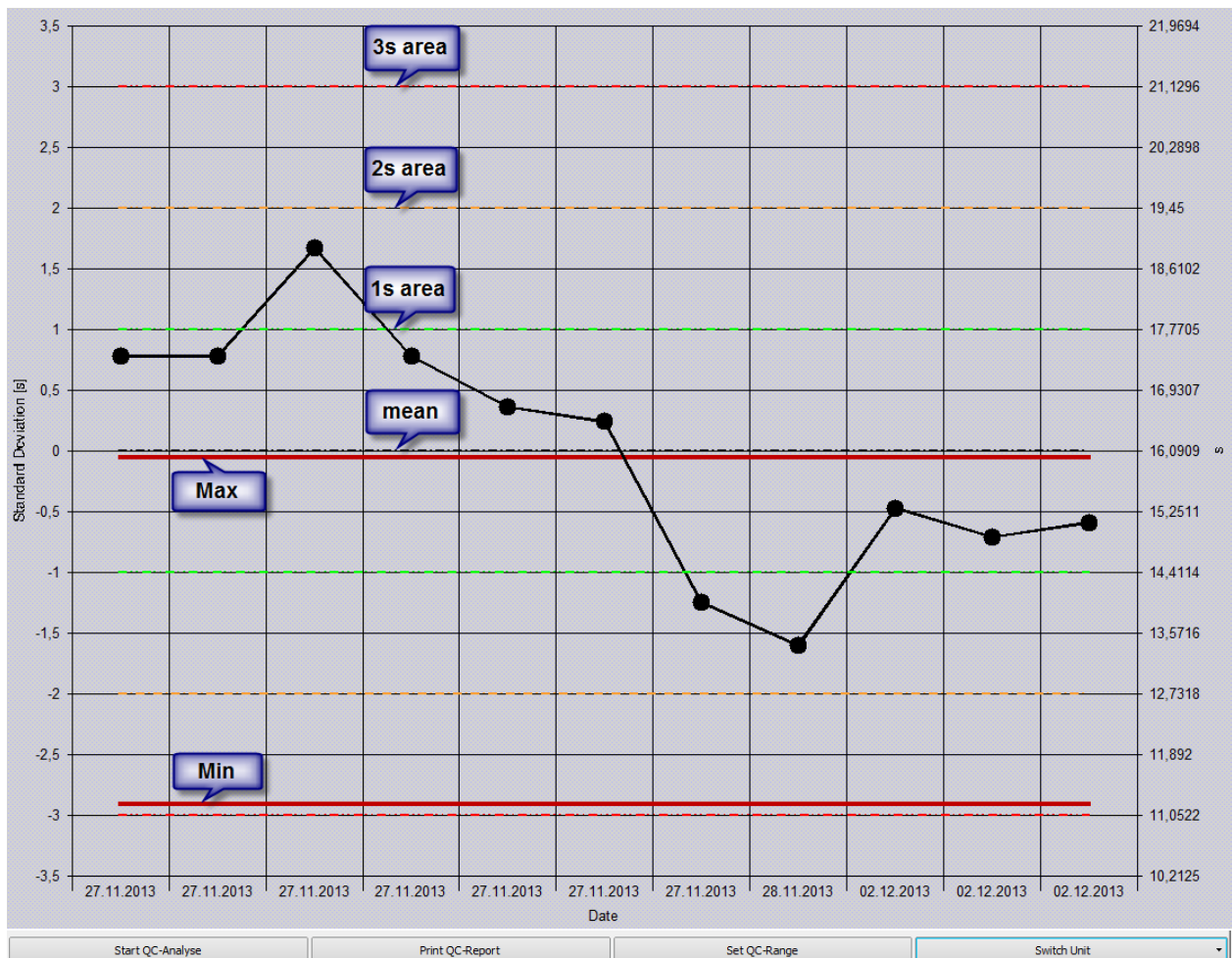
Coagulation Database

Date	Time	Patient-ID.	Sample-ID	Name	QC	Test
		=1		Sample-1	-	=PT
19.11.2013	16:30:31	1		Sample-1	☒	PT
19.11.2013	16:33:13	1		Sample-1	☒	PT
19.11.2013	14:19:56	1		Sample-1	☒	PT
02.12.2013	10:48:35	1		Sample-1	☒	PT
27.11.2013	13:23:30	1	1025-1	Sample-1	☒	PT
25.11.2013	14:42:21	1		Sample-1	☒	PT
25.11.2013	14:43:18	1		Sample-1	☒	PT
25.11.2013	14:47:25	1		Sample-1	☒	PT
27.11.2013	13:22:06	1	1024-1	Sample-1	☒	PT
27.11.2013	13:37:06	1	1027-1	Sample-1	☒	PT

select QC result

click here

Levey Jennings diagram is displayed and the result of statistical analysis:



The left axis scale is the standard deviation of the data series

The right axis scale is the result of the data series.

The Min and Max line is defined by the QC-range

The QC data is only passed, if all results are within MIN-MAX (red line) and no Westgard rule failed

OUT OF CONTROL !

Westgard Rules

- ☒ QC s [11,2 - 16]
- ☒ CV
- ☒ 1:2s

Multirules

- ☒ 1:3s
- ☒ 2:2s
- ☒ R:4s
- ☒ 4:1s
- ☒ 10:x
- ☒ 7:T

QC failed

Results must be within qc-ranges (MIN-MAX)

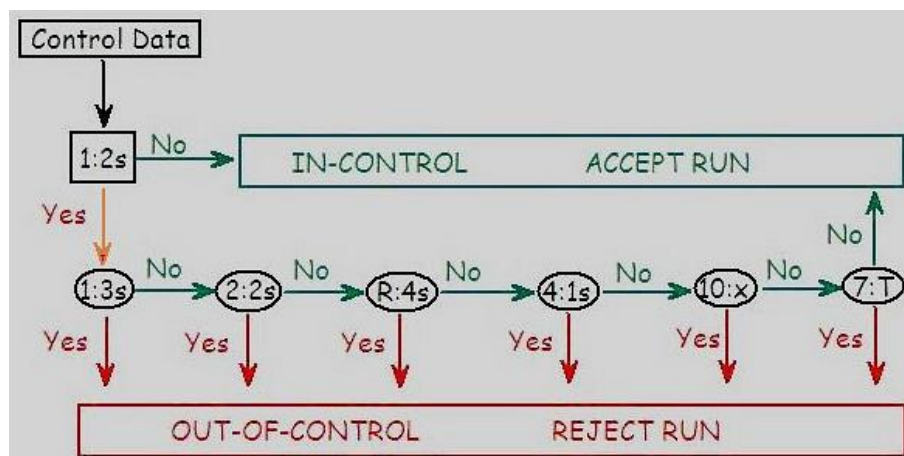
CV. value is limited to 12%

West rules are enabled.

Westgard Analyze

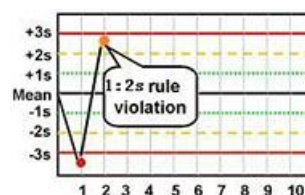
Diagnosing principle of Westgard analyze:

QC is failed if “rule 1:2s” and any other rules is broken!

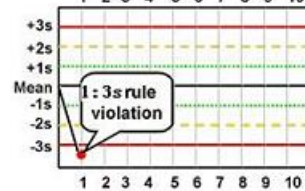


Description the abbreviation of the control rules:

1:2s refers to 1 point is outside 2 SD. If yes, the following rules should be checked; if no, the run is in-control.



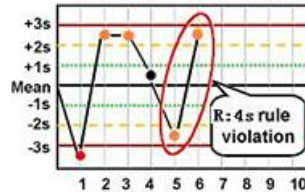
1:3s refers to 1 point is outside 3 SD.



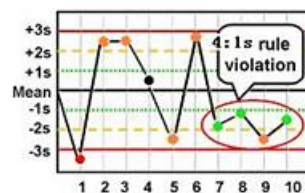
2:2s refers to 2 consecutive points are outside 2 SD on the same side of the mean.



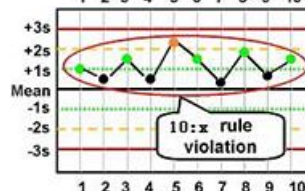
R:4s refers to range of 2 points is greater than 4 SD.



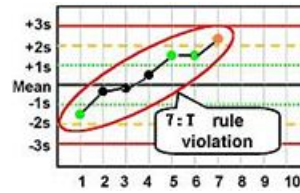
4:1s refers to 4 consecutive points exceed 1 SD on the same side of the mean.



10:x refers to 10 consecutive points are above or below the mean



7:T refers to 7 consecutive points trend in the same direction, i.e., get progressively higher or progressively lower.



Reference: see www.westgard.com

6.7. Calibration Data

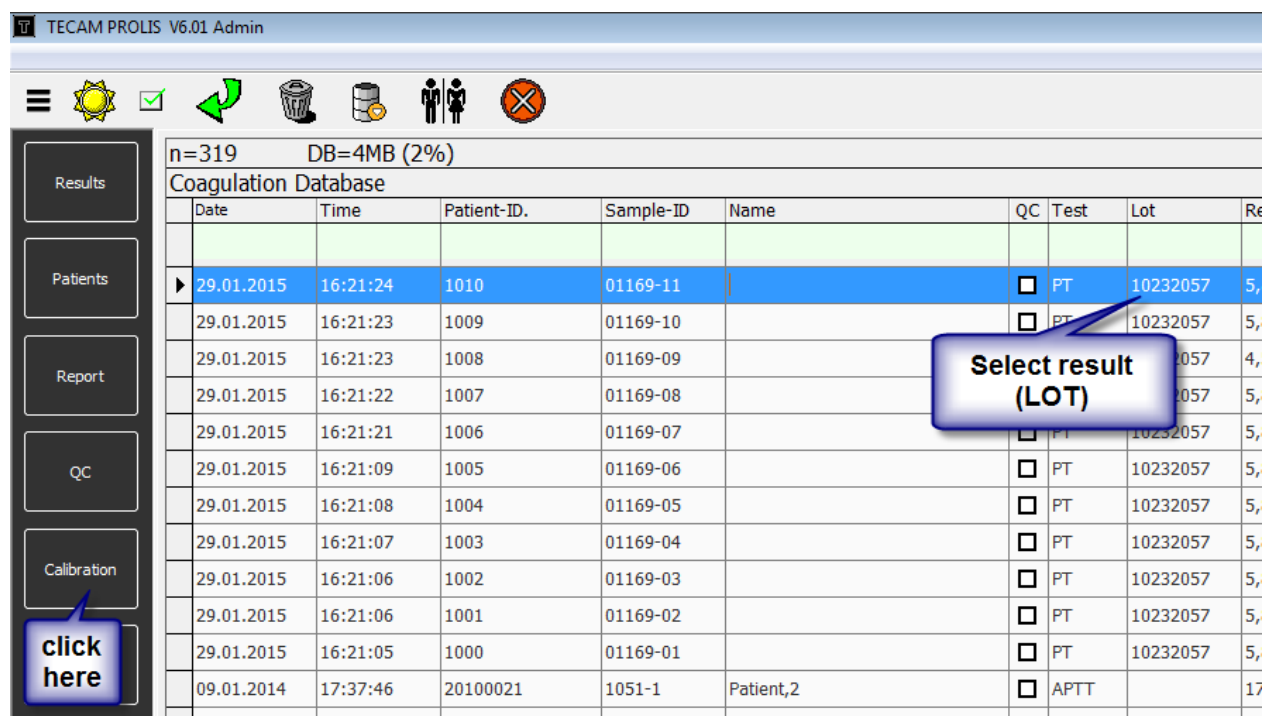
The Coatron instrument sends automatically information about test calibration together with each result. This gives you later the chance to visualize the calibration curve and trace each result back to its calibration data and international standard.

About calibration:

The Coatron system measures the clotting time of a coagulation test like PT. The clotting time is depending very much on analyzer and reagent and therefore difficult to compare from lab to lab. For this clotting time is converted to an international standard like Quick-% or INR. Calibration curve and reference data are required for the conversion.

About traceability:

Means the ability to track back each result to its calibration data and further to its international standard. For example an INR results requires the ISI value of the reagent and the normal time of the instrument. Both value are stated in the certificate of analysis and stored in the data memory of instrument. The certificate of analysis provides also information about calibration procedure and material like (lotnumber of calibrator or international standard)

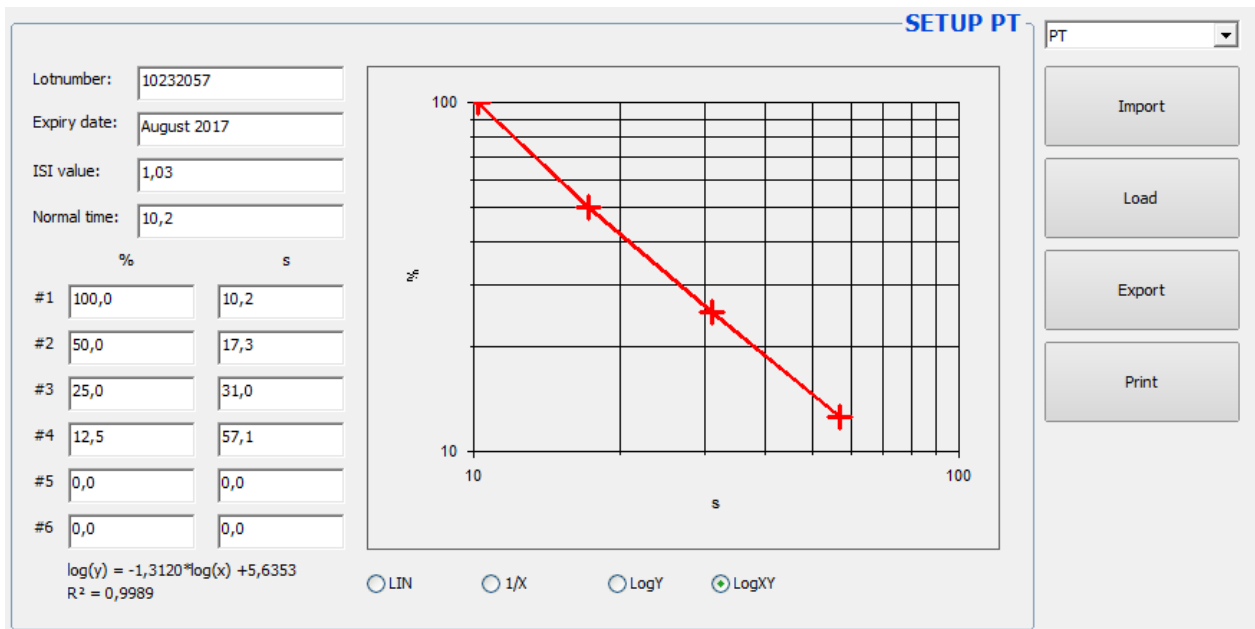


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n=319 DB=4MB (2%)

Coagulation Database

Date	Time	Patient-ID.	Sample-ID	Name	QC	Test	Lot	Re
29.01.2015	16:21:24	1010	01169-11		☐	PT	10232057	5,
29.01.2015	16:21:23	1009	01169-10		☐	PT	10232057	5,
29.01.2015	16:21:23	1008	01169-09				057	4,
29.01.2015	16:21:22	1007	01169-08				057	5,
29.01.2015	16:21:21	1006	01169-07		☐	PT	10232057	5,
29.01.2015	16:21:09	1005	01169-06		☐	PT	10232057	5,
29.01.2015	16:21:08	1004	01169-05		☐	PT	10232057	5,
29.01.2015	16:21:07	1003	01169-04		☐	PT	10232057	5,
29.01.2015	16:21:06	1002	01169-03		☐	PT	10232057	5,
29.01.2015	16:21:06	1001	01169-02		☐	PT	10232057	5,
29.01.2015	16:21:05	1000	01169-01		☐	PT	10232057	5,
09.01.2014	17:37:46	20100021	1051-1	Patient,2	☐	APTT		17



This screen shows the all data and linearity of calibration. Current TECAM version allows editing the data, but it is under discussion to remove this feature due to traceability requirement.

- Test: Select desired test from the drop down box.
- Load: Open test calibration file from PC
- Import: Coatron A: Receive and save calibration data from instrument



Coatron-X: Go to device , open test selection screen and print setup,

- Export: Download calibration data to instrument



- 1) Coatron-X don't accept changes of MATH
- 2) Coatron-X don't accept any changes

- Print: Print out current calibration curve.

6.8. Method information of instruments

	The sequence and name of method must be always equal to the instrument setup. Never change this logic; otherwise it might be that instrument receives a wrong order! For example the test “PT” is stored in the instrument on the first place as “PT”. Therefore it must be in the first line of the table Methods and field “Method” must be named “PT”. Use function “SYNC” to ensure correct sequence.
---	--

(1) TECAM PROLIS V6.04 Admin










Results

Patients

Report

QC

Calibration

Methods

Method	Name	Host-Id.	Range	Profile
PT	PT	1	[70-120%] [0,90-1,15INR]	1
DFIB	DFIB	2	[180-350mg/dL]	0
APTT	APTT	3	[26-38s]	1
FIB	FIB	4	[150-350mg/dL]	1
AT	AT	5	[70-120%]	1
TT	TT	6	[16-24s]	1
DD	DD	7	[100-1500ng/mL]	1
HEP	HEP	8	[0-0,1IE/mL]	0
PC	PC	9	[70-140%]	0
PS	PS	10	[65-150%]	0
F2	F2	11	[70-120%]	0
F5	F5	12	[70-120%]	0
F7	F7	13	[70-120%]	0
F8	F8	14	[70-150%]	0
F9	F9	15	[70-120%]	0
F10	F10	16	[70-120%]	0

click here to open methods

S

%

INR

select method and enter new range

OK

SYNC

Receive method information from analyser

Data fields

- Method =Name of test at instrument.

Name and sequence of test can be obtained from instrument menu "SETUP TEST".

CHANGE TEST			
PT	DFIB	APTT	FIB
AT	TT	DD	HEP
PC	PS	F2	F5
F7	F8	F9	F10
F11	F12	PLG	-APC
APCR	LA-S	LA-C	PSF

Goto instrument and select
„SETUP TEST“

1=PT 2=DFIB 3=APTT 4=FIB
5=AT

1=INFO

- Name = Name of test at TECAM
- Host-ID = ID of test at LIS
- Range = The normal range defines the expected results of a healthy person and is normally defined by international standards.

Keep the range blank to disable the unit in the result report. Here PT will only reported in % and INR, but result in s is blended out in the report if option "Report all units" is deactivated. See chapter "Create a report".

- Profile = Define test as profile test. This is helpful, if you want to filter test selection when creating orders (see 3.2 *Edit worklist*)
- SYNC = Import correct name and sequence of methods from instrument.

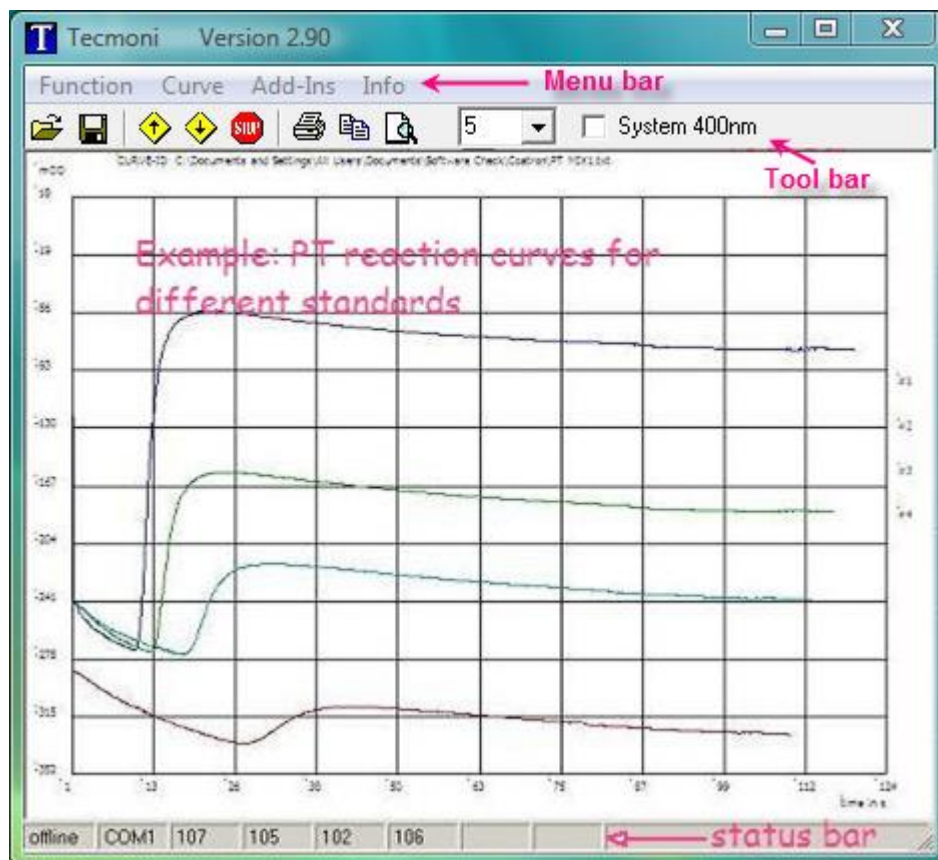
7. TECMONI(only for TECAM Smart)

7.1. Introduction

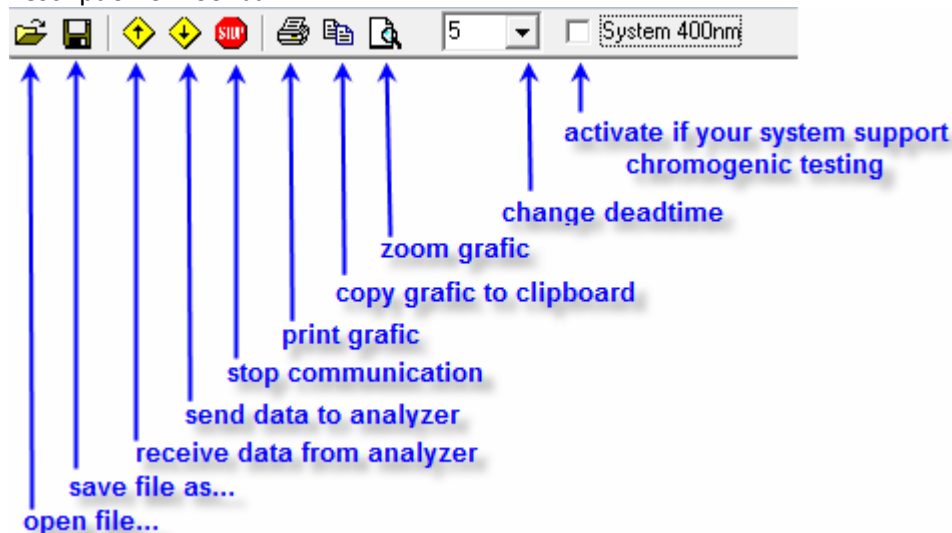
TECMONI is an integrated program for studying reaction curve in real time. It can be started by clicking **Extras** menu then **TECMONI** submenu under the condition of TECAM Smart is offline.

It is a very useful tool to receive, save or analyze optical reaction curves from analyzer and send them back to analyzer.

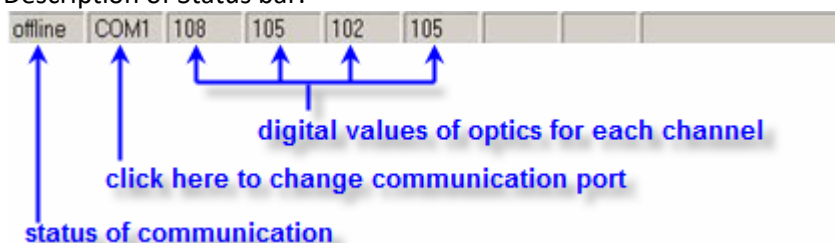
Its user friendly interface is consisted of four parts: menu bar, tool bar, graphics window and status bar.



Description of Tool bar:



Description of Status bar:



7.2. Menu

Description of Menu:

Name of menu	Name of submenu	shortcut key	Function description
Function	Open..	Ctrl+O	load data file into graphics window
	Save as..	Ctrl+S	save actual diagram into data file.
	Send	F7	send actual diagram an analyzer.
	Receive	F8	receive diagram from analyzer.
	Export Curve		Save actual diagram into an external Excel file.
	Print Curve	Ctrl +P	Print actual diagram.
	Printer Configuration		Print setup
	Exit	Ctrl+X	End TECMONI
Curve	Clear		Clear diagram. Actual measurement will be deleted if it is not saved.
	Copy	Ctrl+C	Copy diagram into clipboard. You can start i.e. MS WORD and paste it from clipboard into your document.
	Normalize to 1 cm		Normalize scale
	View		ZOOM: Reaction curve will be zoomed to its maximum. Select channel to show or not show the reaction curve of this channel.
	RealTime Grafic		real time optical reaction curve can be seen if it is selected, otherwise, the curve can be not seen until you stop the communication.
Add-Ins	Printer Emulation		Receive print data from analyzer.
	Receive LIS		Recommend using Smart,Pro or ProIis to replace this function.

7.3. Functions

How to receive data from analyzer:

1. Connect service port of analyzer to serial port of PC with RS232 cable.
2. Click **COMx** in the status bar to change the actual port.
3. Set Deadtime (for PT i.e. 5 sec is recommended)
4. Press function key **F8** or select **Function** menu**Receive** submenu to start monitoring.
Now you can see digital values of optics in the status bar.
5. Goto analyzer and start the measurement.
6. Press "**ESC**" to stop monitoring.
7. Select **Function** menu**Save** submenu.

How to send data to analyzer:

1. Connect service port of analyzer to serial port of PC with RS232 cable.
2. Click **COMx** in the status bar to change the actual port.
3. Load data file by selecting **Function** menu**Open** submenu
4. Press function key **F7** or select **Function** menu**Send** submenu to start monitoring.
5. Goto analyzer and activate the measurement.
6. Goto the PC and start the transmission, now you can see the digital values in the status bar.
7. The analyzer will start automatically after a while.
8. Press "**ESC**" to stop transmission.

How to receive print data from analyzer:

1. Connect printer port of analyzer to PC with RS232 cable.
2. Select **Add-ins** menu**Printer Emulation** submenu.
3. Select correct com port and settings from drop down box.
4. Click "**Start**" button, then each printout of the analyzer will be displayed on your screen.
5. Click "**Print**" button to print report with a connected printer or click "**Save**" button to save it.

Research Tips:

1. Zoom diagram: Click left mouse button, draw a window and release the button.
Tip: Press function key **F2** to zoom completely.
2. Trigger: if the check-box of "**Trigger**" is checked, then the deadtime will be change to the left x-coordinate of the zoom window. Therefore the first y-value of the curve is always 0.
3. Determine slope: Click right mouse button, draw a line and release the button.
4. Deadtime: The optical density is calculated against the digital value at the deadtime. The optical density is always 0 at the deadtime.

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