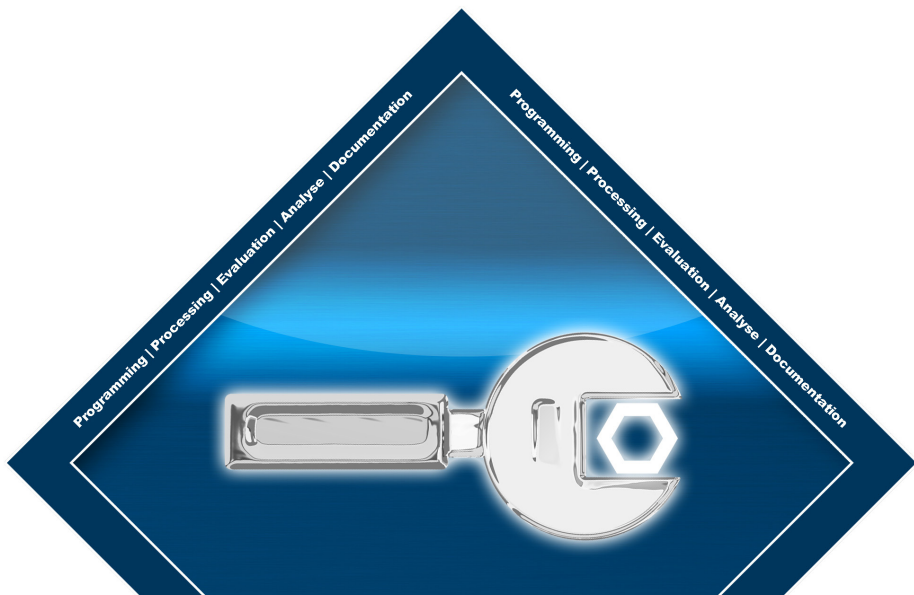




TOOL MANAGER SOFTWARE USER MANUAL



FOR USE WITH ACRADYNE TRANSDUCERIZED CORDLESS TOOLS

ABP-CTA Models

ABN-CTA Models

ABS-CTA Models



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General warning to prevent operating errors and failures.



This indicates a direct hazard for the worker or the tool. This warning symbol is especially important and must be observed.



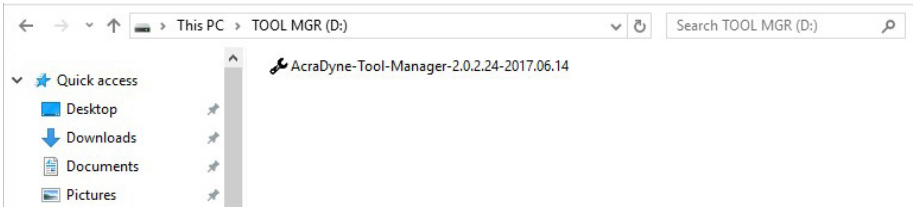
This symbol indicates additional information that will make your work easier.

1. INSTALLING THE DRIVERS



Open the data storage device.

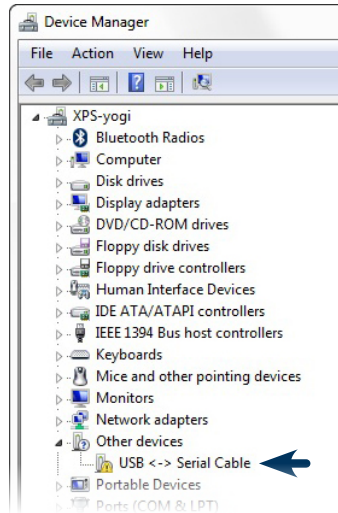
The folder will open automatically.
If it doesn't, click on "Start" >
"Computer" and open it manually.



Save the files in a folder on the desktop or in another folder on your computer. Call the folder for instance, Date-ToolManager-Version. If you save them in another folder, creating a link on the desktop is recommended. Then you can start Tool Manager.exe.

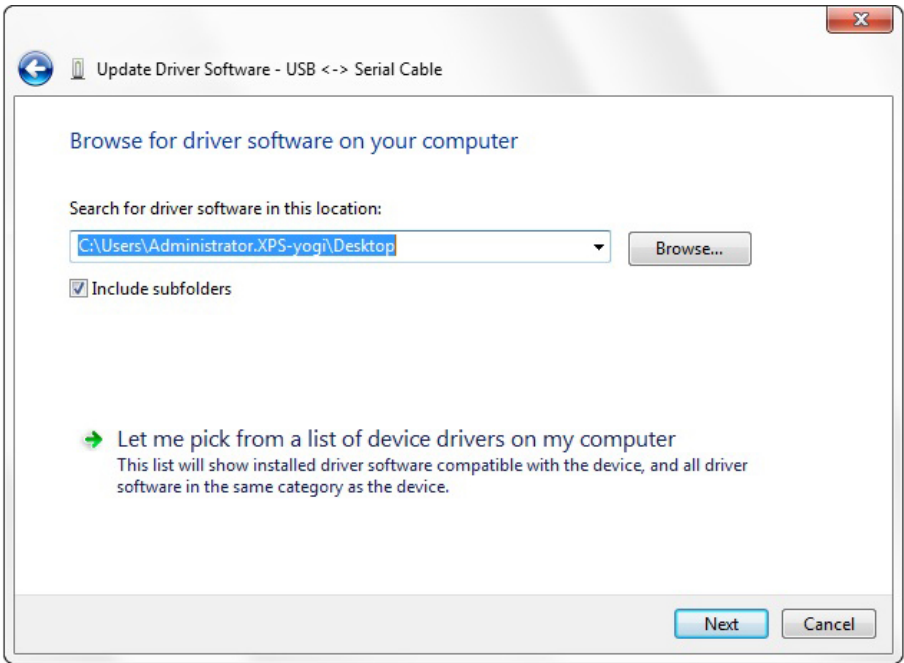
If the software does not open or doesn't recognize the tool, check to ensure you have installed the USB driver (ft232rl). To do this, connect the tool to the computer via USB and open the device manager.

In this case, the ft232rl is not installed yet and does not correctly recognize the COM Port. The driver needs to be installed.

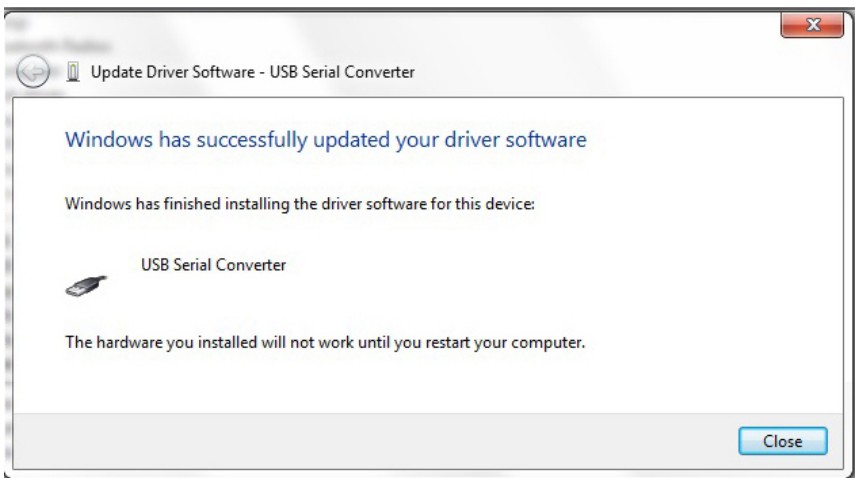


Installing drivers on a computer requires administrative rights. If you do not have these, contact your IT department.

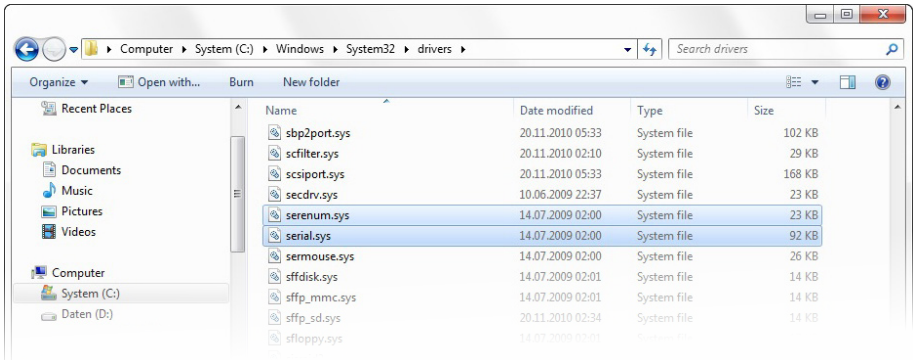
After you connect the tool to the computer via USB, click on the "New hardware found" symbol on the lower right of the screen. The window for updating the driver software will open.



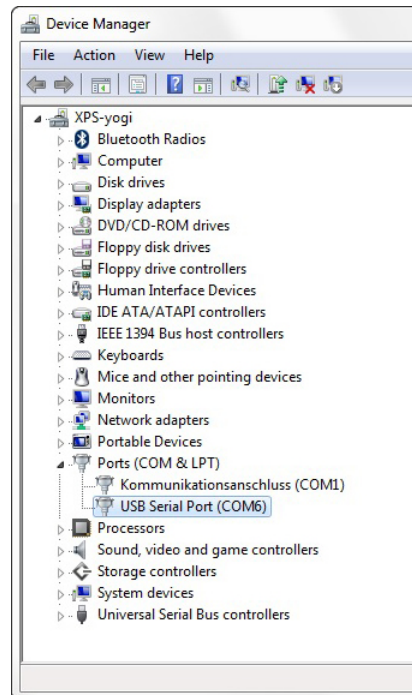
Click on: "Search for driver software on the computer" and navigate to the ft232rl folder on the data storage device or the folder in the files you copied. Click "Next."



The following files are created in the system32 folder when installing the ft232rl driver: serenum.sys and serial.sys.



The device manager should no longer display an error, and the USB serial port is displayed when the tool is connected to the computer. The software is now fully functional.



2. GENERAL

2.1.0. OVERVIEW

Tool Manager is a programming interface that allows modification of the parameters of the product features and functions for all tools.

All of the tool settings are set using Tool Manager via USB or Wi-fi and these do not require any software installations (only the driver(s) must be installed).

Changes can only be made to a tool when a connection is established. Settings for a tool can be loaded into Tool Manager software for editing. After editing, the file can be sent back to the tool via USB or Wi-fi.

2.2.0. INTRODUCTION

Tool Manager does not require installation and is delivered via an .exe file. Tool Manager is copied to a directory and can be executed directly. The software can be copied into any directory on the computer. All users require write rights for this directory.

2.3.0. GUARANTEE AND LIABILITY

NEW TOOL AND ACCESSORY WARRANTY

Any new tool or accessory branded with the AIMCO, Uryu, AcraDyne or Eagle Industries name, and purchased from AIMCO, or through one of its authorized distributors or agents, is warranted to the original buyer against defects in materials and workmanship for a period of one (1) year* from date of delivery. Under the terms of this warranty, AIMCO will repair or replace any product or accessory warranted hereunder and returned freight prepaid proving to AIMCO's satisfaction to be defective as a result of workmanship or materials. In order to qualify for this warranty, written notice to AIMCO must be given immediately upon discovery of such defect, at which time AIMCO will issue an authorization to return the tool. The defective item must be promptly returned to an authorized AIMCO service center with all freight charges prepaid.

REPAIRED TOOL WARRANTY

Once a tool is beyond the new product warranty period as detailed above, AIMCO repairs are subject to the following warranty periods: pneumatic tools: 90 days*; electric tools and Acra-Feed: 90 days; battery tools: 30 days*; DC Electric tools: 90 days*

EXCLUSION FROM WARRANTY

This warranty is valid only on products purchased from AIMCO, or thru its authorized distributors or agents. AIMCO shall have no obligation pursuant to the AIMCO Warranty with respect to any tools or accessories which in AIMCO's sole judgment have been altered, damaged, misused, abused, badly worn, lost or improperly maintained. This Warranty is null and void if the customer, or any other person other than an authorized representative of AIMCO, has made any attempt to service or modify the tool or accessory prior to its return to AIMCO under this Warranty.

The warranty provision with respect to each such product may be amended by AIMCO from time to time in its sole discretion. The liability of AIMCO hereunder shall be limited to replacing or repairing, at its option, any products which are returned freight prepaid to AIMCO and which AIMCO determines to be defective as described above or, at AIMCO's option, refunding the purchase price of such products.

AIMCO reserves the right to make periodic changes in construction or tool design at any time. AIMCO specifically reserves the right to make these changes without incurring any obligation or incorporating such changes or updates in tools or parts previously distributed.

THE AIMCO WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND AIMCO EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY SETS FORTH THE SOLE AND EXCLUSIVE REMEDY IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE.

THIS WARRANTY IS THE ONLY WARRANTY MADE BY AIMCO WITH RESPECT TO THE GOODS DELIVERED HEREUNDER, AND MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULY AUTHORIZED OFFICER OF AIMCO.

LIMITATION OF LIABILITY

AIMCO'S LIABILITY PURSUANT TO WARRANTY OF THE PRODUCTS COVERED HEREUNDER IS LIMITED TO REFUND OF THE PURCHASE PRICE. IN NO EVENT SHALL AIMCO BE LIABLE FOR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS BY THE BUYER. IN NO EVENT SHALL AIMCO BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT) WHETHER OR NOT AIMCO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS, HOWEVER CAUSED, WHETHER FOR BREACH OR REPUDIATION OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHERWISE. THIS EXCLUSION ALSO INCLUDES ANY LIABILITY WHICH MAY ARISE OUT OF THIRD PARTY CLAIMS AGAINST BUYER. THE ESSENTIAL PURPOSE OF THIS PROVISION IS TO LIMIT THE POTENTIAL LIABILITY OF AIMCO ARISING OUT OF THIS AGREEMENT AND/OR SALE.

Note: The AIMCO Warranty confers specific legal rights, however some states or jurisdictions may not allow certain exclusions or limitations within this warranty.

* All warranty periods addressed herein are determined using a standard shift, eight-hour work day.

2.5.0. SYSTEM REQUIREMENTS

The minimum requirements for Tool Manager:

- Windows XP, Vista, Windows 7, or Windows 8 operating system
- To execute the program on XP operating systems, Microsoft .NET-Framework Version 4.0 or higher is required.
- USB 2.0 (or programming via Wi-fi)
- Pentium III processor (recommended: Dual Core)
- Ethernet 10/100 Base (only for configuring the tool via the network)
- 500 MB of free hard drive space (recommended: 2 GB)

2.6.0. INSTALLING TOOL MANAGER

The software can be saved in any directory. It is important for all users to have write rights for the directory on the computer. A separate installation is not required.

2.7.0. SETUP OPTIONS OF USER GROUPS

Adjustment / function	evaluation	programmer	administrator	network admin	calibration	service
Read data						
Save data						
Print						
Settings						
Display						
Network						
Data						
Role						
Change user						
Connect tool without reading						
Send configuration to the tool (write)						
Show statistics						
Show graph						
Programming						
Program 0 - 99						
Program						
Option						
Step 1 - 6						
General						
Gear						
Strategy						
Option						
Barcode						
Job/sequence						
Setup						
General						
Management						
Signals						
OLED-display						
LED						
Sound signal						
Vibration alarm						
Communication						
WLAN						
IPv4						
RF868						
Graphics						
System time						
Basic settings						
Update						
Calibration						
MCT						
Service						
Log file						
Language Selection						

2.8.0. SETUP OPTIONS OF TOOL TYPES

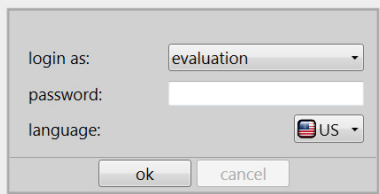
Configurable Settings:

- Programs 0-99
- Jobs / sequence 0 - 9
- Count function
- Program options
- Gradient
- Graphic
- Statistic
- Enable by manual mode
- Enable by trigger & time
- Enable by barcodes & radio
- Send configuration to the tool (write)
- Display
- Service counter
- MCT counter
- Standby time adjustable
- LED & vibration alarm adjustable
- General settings
- Barcode settings
- Radio settings

3. FIRST STEPS

3.0.0. LOGGING ON TO TOOL MANAGER

To start Tool Manager, you must log in as “evaluation,” “programmer,” “administrator,” “network administrator,” “calibration,” or “service.”

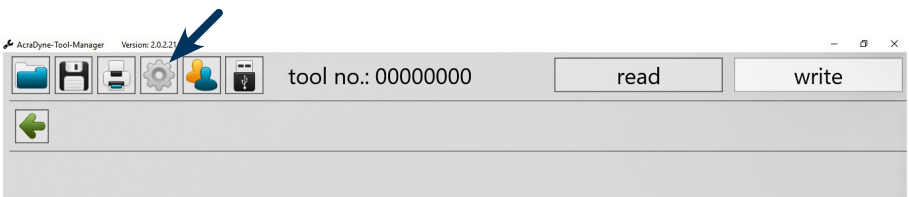


Where can I find the passwords?

The passwords will be given, in printed form, to the person who orders the tools.

3.1.0. CREATE STORAGE LOCATION

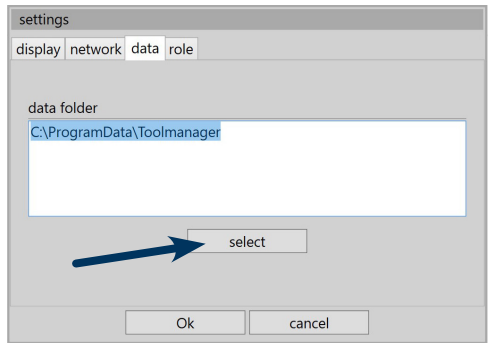
After logging on as administrator, click on Settings on the upper left in the toolbox.



Only work with a properly configured tool and only with a tool for which the settings are known.

Go to the opened pop-up window and click on the "select" button on the data tab to define a new storage location.

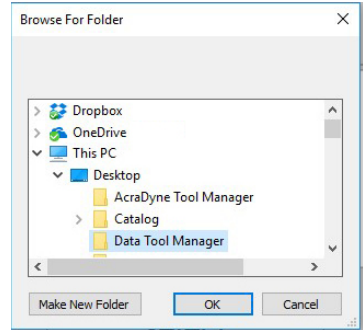
Access as:



Select the new storage location. In our case, a software folder on the desktop.

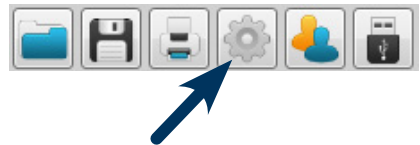
The "data" folder is automatically created in the selected folder. Back-up copies and log files for the tool are saved in this folder. Click on "OK."

The file folder will be displayed again in the pop-up window. Click on "OK" to confirm the storage location.



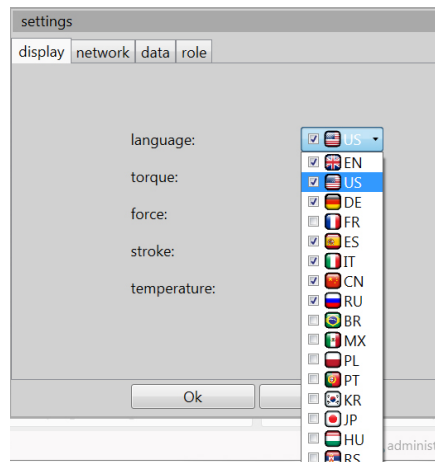
3.1.1. SELECT LANGUAGES

To activate additional languages for other users, click on Settings on the upper left in the toolbox.



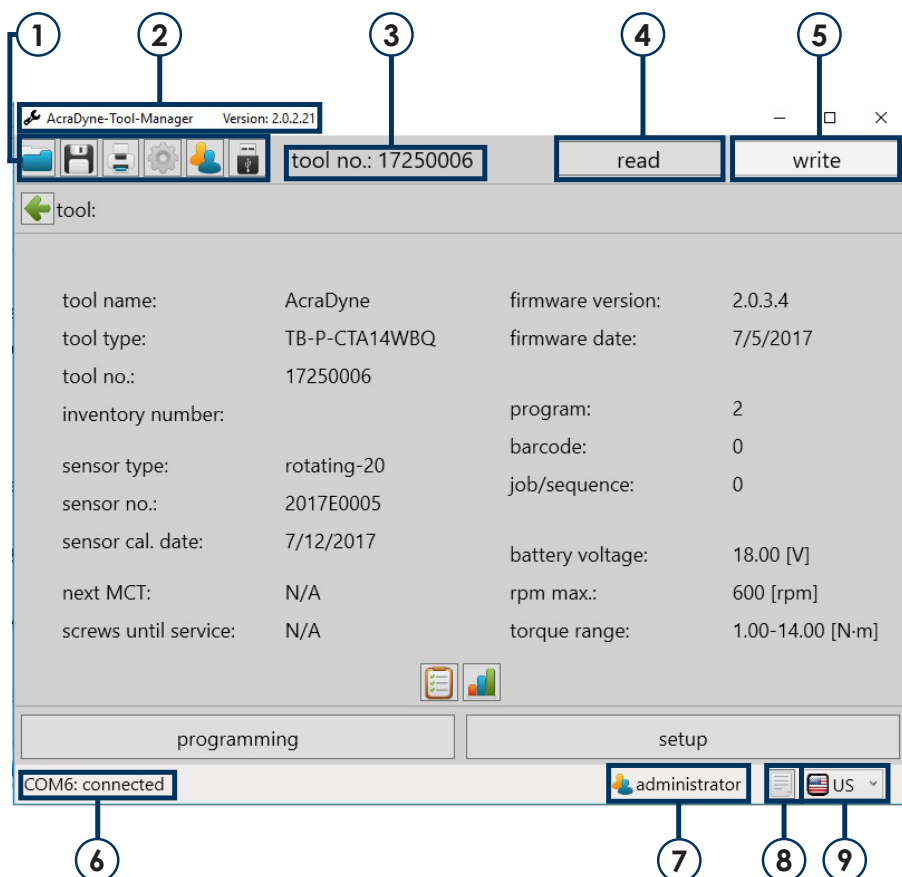
Open the drop-down menu and activate the desired languages by selecting the check mark next to the language. The software will start in the language marked in blue. The display settings "Language," "Torque," "Force," "Stroke," "Temperature" can only be set by the administrator. All selected languages are then permanently available for the user.

Confirm your changes with the OK button.

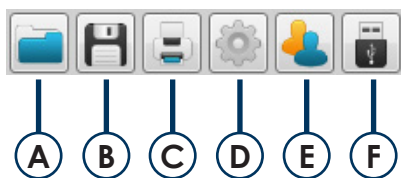


3.2.0. GENERAL SOFTWARE INTERFACE

The start window displays after log-in



1 Toolbox



- A Load saved configuration
- B Save current configuration
- C Print (print screen)
- D Display settings (such as physical units (N.m/lbf.in, °C/°F) and language selection)
- E Change user
- F Connect to the tool without read out (in order to perform the update or restore the tool in case of emergency)

2 Software version Displays the open software version.

3 Tool serial number After connecting and reading in, the serial number of the connected tool is displayed.

tool no.: 00000118

4 Reading After connecting to the tool, all internal tool data are read out of the tool by pressing the "read" button. Do not double click as it may cause errors in the software.

read

5 Write After configuring the tool, by pressing the "Write" button, all of the modified files will be sent to the tool. The button does not become active until changes have been made to the configuration or parameters.

write

6 COM-Port Notification field for the status of the connection with the tool

COM3: connected

7 User display The user display shows you which user is active (user, administrator, calibration technician).

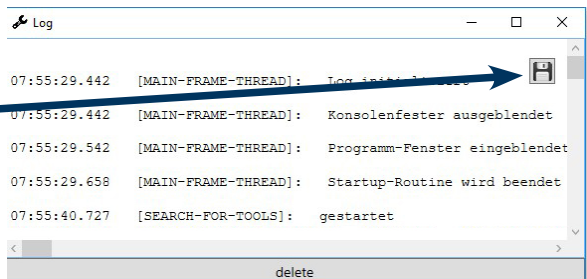
administrator

8 Log window

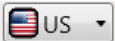
Fade log window in and out or save on the data storage device as a text file.

The log records the communication

between the tool and the software. It is a good tool, especially for cases when the tool cannot be fully read out or not read out at all. The log file provides detailed information about the position at which the error occurred and is intended for the technical support team. The log contains primarily specific notifications. i.e., in case of a problem, fade in the log window, save it as a .txt file and send it to the technical support team.

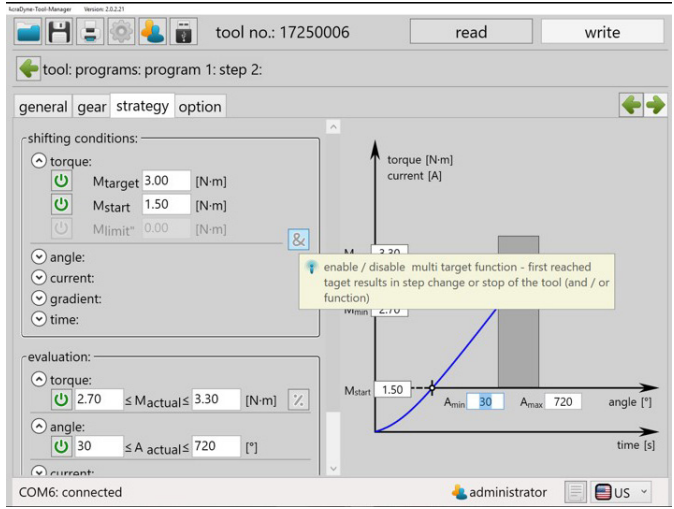


9 Language In the language selection list (lower right), the language can be temporarily switched.



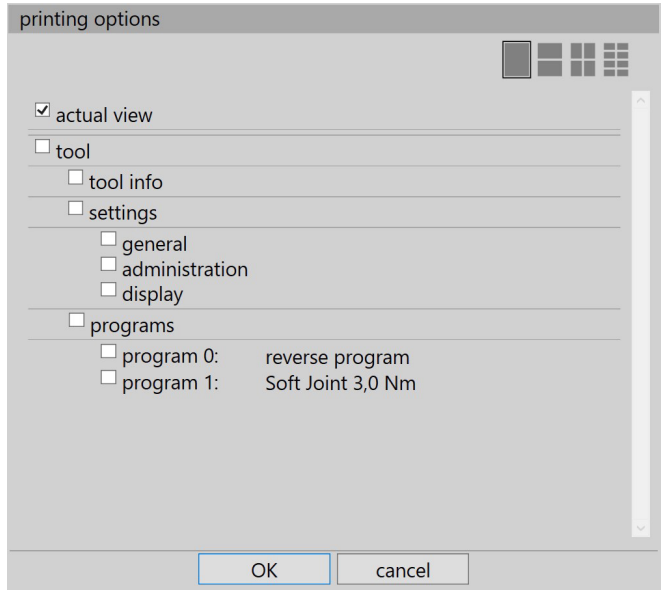
3.2.1. DIRECT HELP OPTION

If you hover over an entry field or button with the mouse, a help text automatically appears for the function.



3.2.2. PRINT OPTION

To print out data, programs, and settings, in a very organized format, a special print function allows different screens to be printed from every software screen. Furthermore, on the top right, you can define whether 1, 2, 4, or 8 of the selected screens should be printed. By adding and removing, the selected pages can be printed. Every page with a check mark will be printed. In this example, the current screen will be printed.



Access as:



3.3.0. GENERAL OPERATION

AcraDyne-Tool-Manager Version: 2.0.2.21

tool no.: 17250006 read write

tool: programs: program 1: step 2: ①

general gear strategy option ② ③ ← →

shifting conditions:

torque: Mtarget 3.00 [N-m] Mstart 1.50 [N-m] Mlimit 0.00 [N-m]

angle: current: gradient: time:

evaluation:

torque: 2.70 ≤ Mactual ≤ 3.30 [N-m] %

angle: 30 ≤ A actual ≤ 720 [°]

current:

COM6: connected administrator US

① **Quick menu 1**
Here you can return to the desired sub-point by clicking on the individual fields. For example, click on “program” to access the program overview.

② **Quick menu 2**
In this menu, you can switch between the individual sub-points. The third menu is linked to this menu.

③ **Quick menu 3**
With this menu, you can quickly switch between the current view and the next level for comparison.

Currently, the left arrow can be used to access level 1 (step 1) and the right arrow to access level 3 (step 3), each under the “strategy” point.

To open further entry and selection fields, click on the arrow (drop-down menu).



Link between torque and rotational angle; if this button is active, the target value reached first is executed as a switching condition.



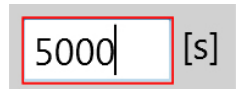
Upper and lower threshold values are entered directly in the evaluation window. By activating this button, the tolerance can be entered in %.



Check all entries and send them to the tool using "write."



Many entry fields have a limit. If a red box appears around the number you want to enter, it is too high, too low, or contains invalid characters.



3.4.0. WIRELESS NETWORKS / TOOL WITHOUT USB



Only for tools without USB!

Function only works when an active network, incl. Wi-fi and access point is available. A PC alone is not sufficient.

If you are using the tools without a USB connection, first configure the network settings. To do this, a QR code is created via which you can load/activate the network settings with the tool. Load an already existing tool file as described in point 11.2.0, page 76, into Tool Manager. The network administrator needs to be logged in. Click on the "setup" button and enter the network data provided by IT.

AcraDyne-Tool-Manager Version: 2.0.2.24
tool no.: 00000118
read write
tool: setup:
general management signals communication graphics system time basic settings update
WLAN telegrams
SSID: customer network
network key: 6548dalLA5321Wkdfm
band: 5 GHz channel list: auto
transmitting power: 17 dBm / 50 mW DFS backup channel: 52
network protocol: TCP connection type: infrastructure
own IP-address: 192 . 168 . 95 . 40 port: 8002
server IP-address: 192 . 168 . 95 . 50 port: 8002
subnet mask: 255 . 255 . 255 . 0
default gateway: 192 . 168 . 95 . 25
COM3: connected administrator US

As soon as all of the network data is correctly and completely saved, click on the QR code symbol.

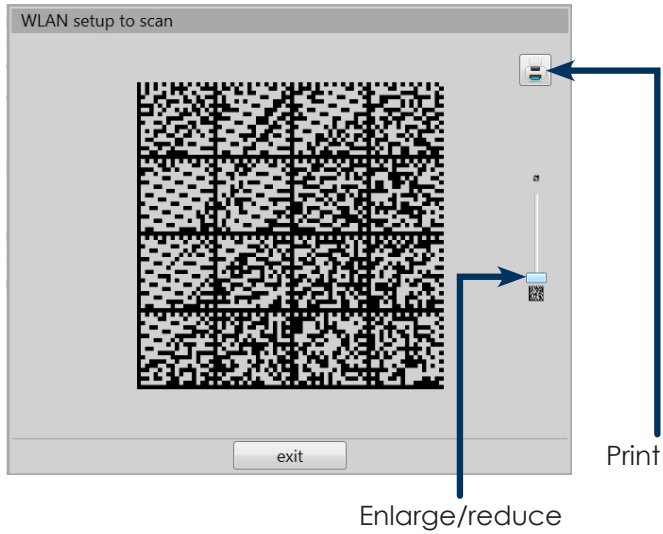
255 . 255 . 255 . 0
192 . 168 . 95 . 25
port: 8002
administrator US

Access as:

network administrator

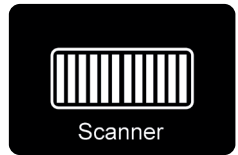
The size of the QR code can be adjusted on the right edge. If you do not want to scan from the screen, you can also print it out in the desired size.

To connect the tool to the network, scan the network setup barcode.



3.4.1. INTEGRATE THE TOOL IN THE WI-FI NETWORK VIA SCAN FUNCTION

To scan in the network setup barcode, select the scanner on the display. The function of the display is explained in the operation instructions for the tool.



Hold the trigger and point the scanning field at the barcode. The tool confirms the successful scan with a short signal tone and then shows that it has connected on the display.

4. BASIC SETTINGS

4.1.0. BASIC SETTINGS

The software makes it easy to configure different tool settings. To make the settings more understandable, they are divided into individual tabs. To do this, go to the start screen and click on the "setup" button.



Changes can only be made to a connected tool and when logged in as administrator.

AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118

read write

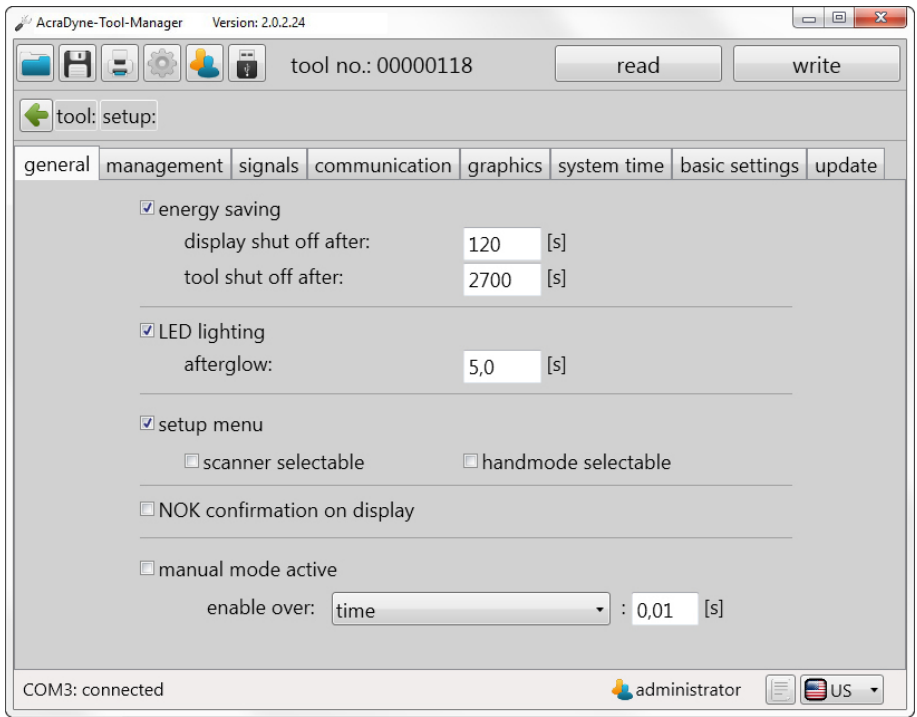
tool:

tool name:	PROG3-P	firmware version:	2.0.0.7
tool type:	120	firmware date:	09.04.2014
tool no.:	00000118	program:	17
inventory number:	HCXB1025WV40	barcode:	1
sensor type:	HS-PRG3-2000	sequence/job:	3
sensor no.:	HS-K0020	battery voltage:	18,00 [V]
sensor cal. date:	13.03.2014	rpm max.:	400 [rpm]
next calibration:	13.03.2015	torque range:	1,50-12,00 [N·m]
screws until service:	499716		

programming setup

COM3: connected administrator US

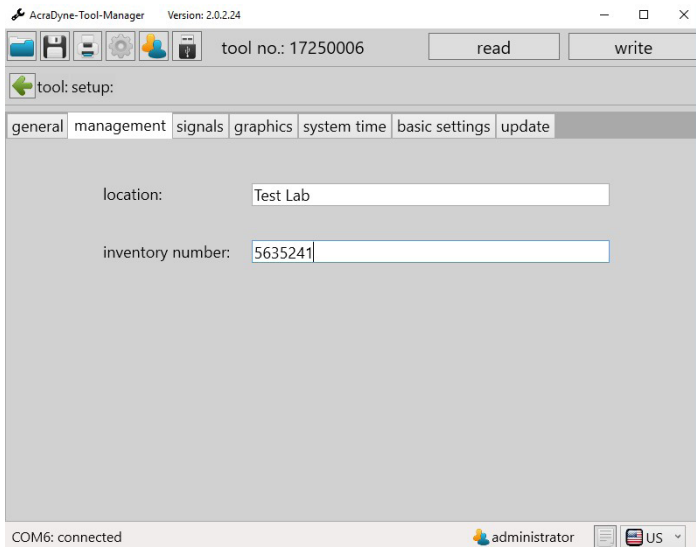
4.2.1. GENERAL TAB



Energy saving	Display shut off after	Display switches to standby after the entered time in seconds if the tool is not used.
	Tool shut off after	Tool switches off after the entered time in seconds if it is not used.
LED lighting	Any time the trigger is pressed, the LED is activated. The LED remains on (afterglow) for the entered time in seconds.	
Setup menu	When this function is selected, the buttons under the display can be used to switch the program or process or to set the torque in program 1. To access setup mode, hold the trigger and install the battery. When you have activated "handmode selectable," you can go to display "M" in setup mode using the yellow display button and confirm by pressing the trigger. Then you have to confirm the left setting button (to the left of the yellow display button). Now the tool executes the standard program which is marked with a yellow star.	
NOK confirmation on display	Confirm NOK screw joint with the yellow button on the display or unscrew an NOK screw joint. Must be selected under programs under "general."	

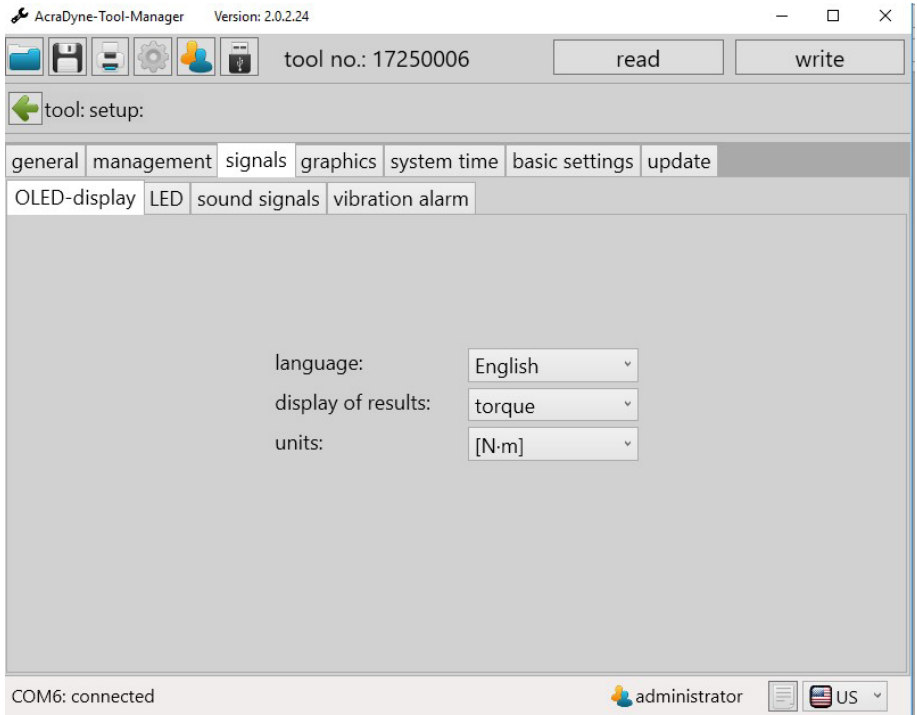
<p>Manual mode active</p>	<p>For applications in which the tool is used as a single-space solution, this mode can be activated. If a connected tool needs to be briefly tested without a connection, this mode can also be activated. When deselected, the type of release must be selected in the selection menu.</p> <p><u>Enable over:</u></p> <ul style="list-style-type: none"> • Trigger: Press the trigger 3x in rapid succession for the release • Time: Release after entered time in seconds • Trigger & time: Combination of the start function • Barcode: Release by properly scanning the barcode • External control unit: External controls issue the release • Barcode & external control unit: After scanning a barcode, the external controls issue the release
---------------------------	--

4.2.2. MANAGEMENT TAB

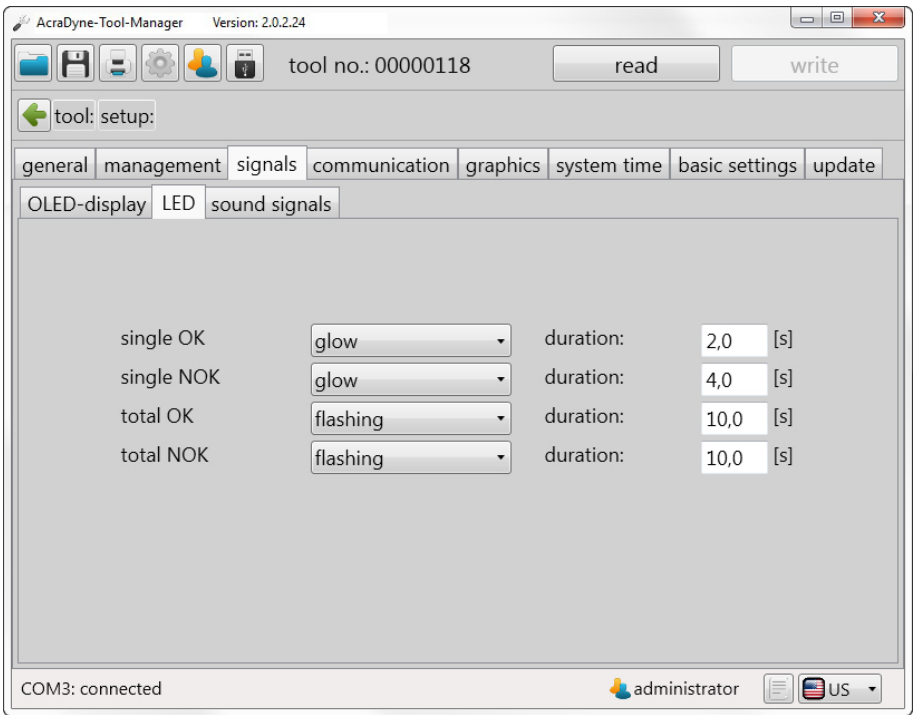


<p>Location</p>	<p>Text line in which anything can be written to enter the place of action or system on which the tool is used. This field is limited to 20 characters.</p>
<p>Inventory number</p>	<p>Text line in which anything can be written to enter the internal company inventory number. This field is limited to 40 characters.</p>

4.2.3. SIGNALS TAB



OLED-Display	
Language	<p>One of two languages can be selected for the tool display and its screens.</p> <ul style="list-style-type: none"> • German • English
Display of results	<p>On the screen for the evaluation of the screw joints, different modes can be displayed.</p> <ul style="list-style-type: none"> • Smiley (image) • Screw joint torque • Number of screw joints • Screw joint rotational angle
Units	<p>Set the physical unit.</p> <ul style="list-style-type: none"> • N·m • Lbf·in • Lbf·ft



LED

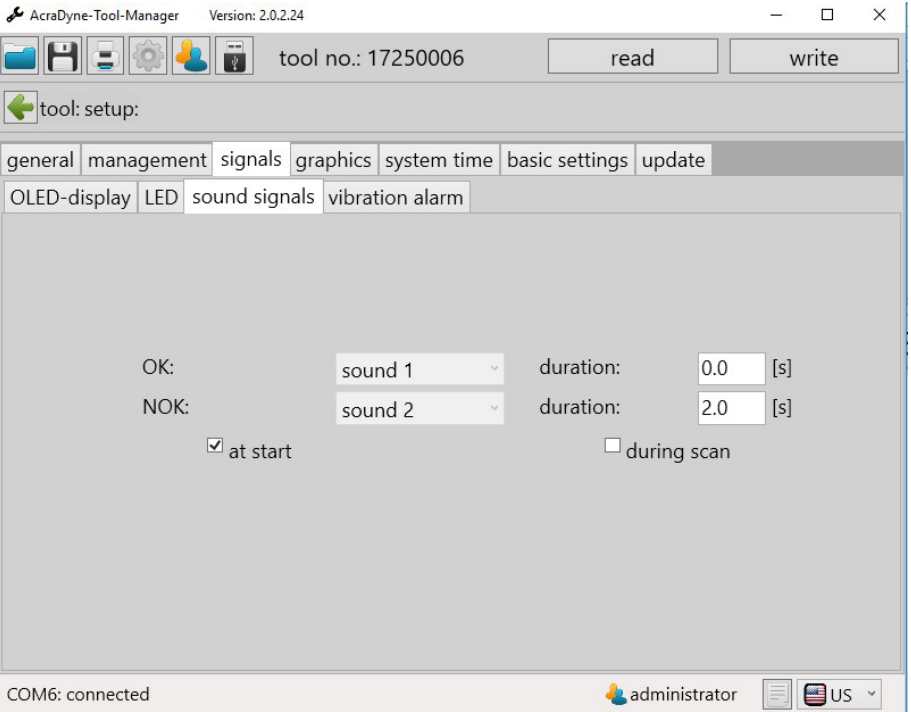
Setting the LED tool screen

- Single OK
- Single NOK
- Total OK
- Total NOK and time

You can define how the LED should behave:

continuously flashing
continuously glow
flashing
glow

Furthermore, you can define how many seconds it should stop for each type.



Sound Signal

OK	Tone 1 is activated for the entered time (can be deactivated with the value, 0)
NOK	Tone 2 is activated for the entered time (can be deactivated with the value, 0)
At start	After installing the battery and successfully starting up the tool, Tone 1 is activated for the entered time (can be deactivated with the checkbox)
During scan	After a successful scan, Tone 1 is activated for the entered time (can be deactivated with the checkbox)

4.2.4. COMMUNICATION TAB



The Communication and Barcode tabs are not displayed in Tool Manager if these basic settings are deactivated.

AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118 read write

tool: setup

general management signals communication graphics system time basic settings update

WLAN telegrams

SSID: Test Network

network key: 6548dalLA5321Wkdfm

band: 5 GHz channel list: auto

transmitting power: 17 dBm / 50 mW DFS backup channel: 52

network protocol: TCP connection type: infrastructure

own IP-address: 192 . 168 . 95 . 40 port: 8002

server IP-address: 192 . 168 . 95 . 50 port: 8002

subnet mask: 255 . 255 . 255 . 0

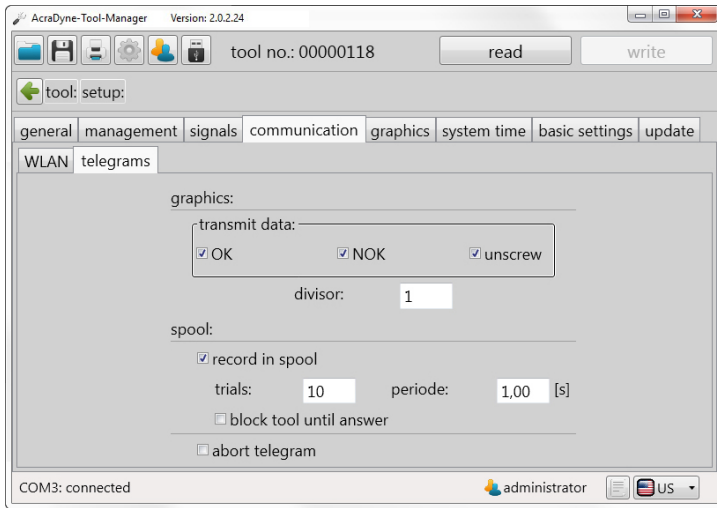
default gateway: 192 . 168 . 95 . 25

COM3: connected administrator US

WLAN

WLAN[[[?]]

The network settings for the tool are saved under Communication Wi-fi; these are for the communication between the tool and its external control unit.

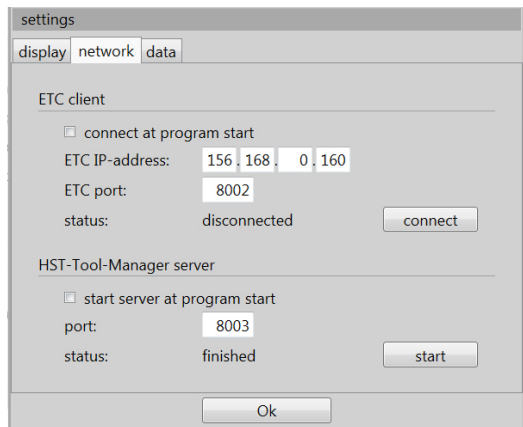


Telegrams

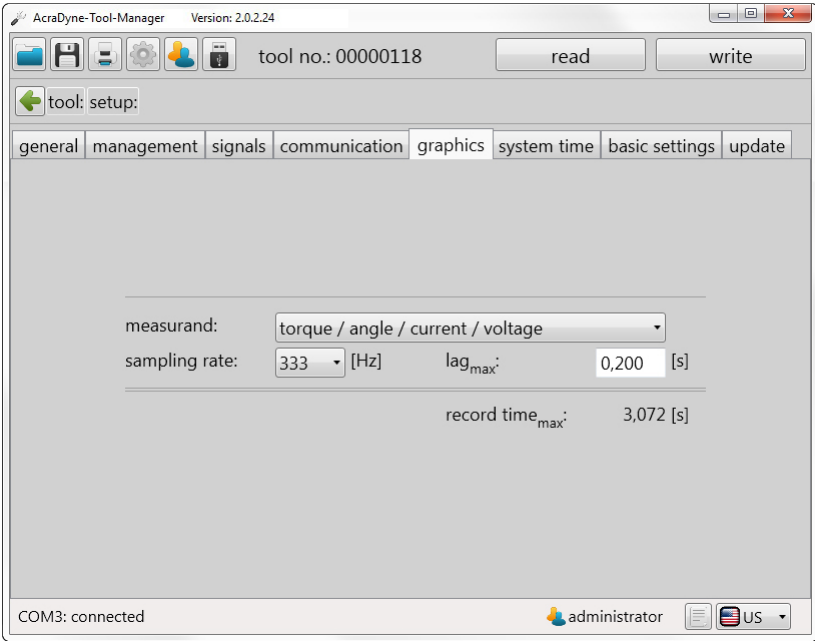
Graphics	Define which data the tool should send to the external control unit. It is possible to transmit OK and NOK screw joints as well as unscrewing processes. Here, you can define whether each individual measurement value for the entire measurement should be included in the graphical evaluation or only the 3rd or 5th value (division factor) should be transmitted.
Spool	Define what happens when the tool cannot transfer the data. The data can be entered here in the telegram buffer if the connection is lost so that when the connection is established, the data can then be sent to the external control unit. It is also possible to block the tool until the telegram is successfully sent.
Abort telegram	If this function is activated, a special cancellation telegram is sent in case of a cancellation. This function may only be executed if a Wi-fi module is active.



Under Settings - Network, the data of the external control unit must be stored so the tool can not only connect to the network, but also the control unit.



4.2.5. GRAPHICS TAB

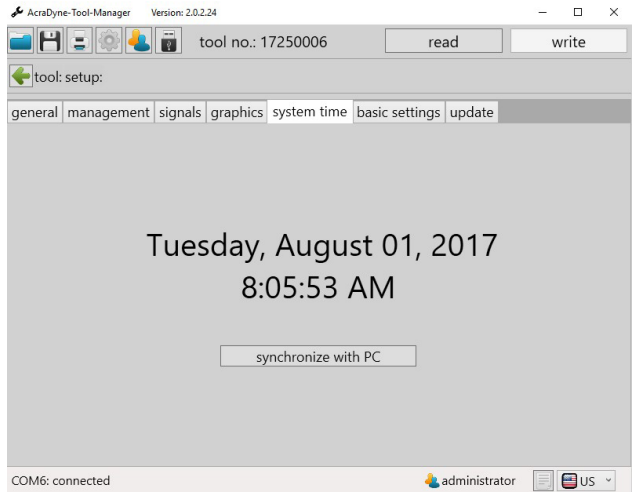


In the tools, approx. 50,000 curves can be stored. In this menu point, it is possible to define the time, type and quality of the curve. To ensure the high number of curves, each change will change the recording time.

Graphics	
Measurand	Select the physical size of the curve display <ul style="list-style-type: none"> • Torque, angle, current, voltage • Torque, angle, current • Torque, angle • Torque
Sampling rate	Select the quality of the recording <ul style="list-style-type: none"> • 50 - 1000 Hertz (depending on the length of the screwing process) High quality (sampling rate) = short recording time Low quality (sampling rate) = long recording time
Lag max	Enter the afferrun time after shutting off the tool. <ul style="list-style-type: none"> • Standard 0.2 seconds.
Record time max	Shows the recording time possible based on the selected settings.

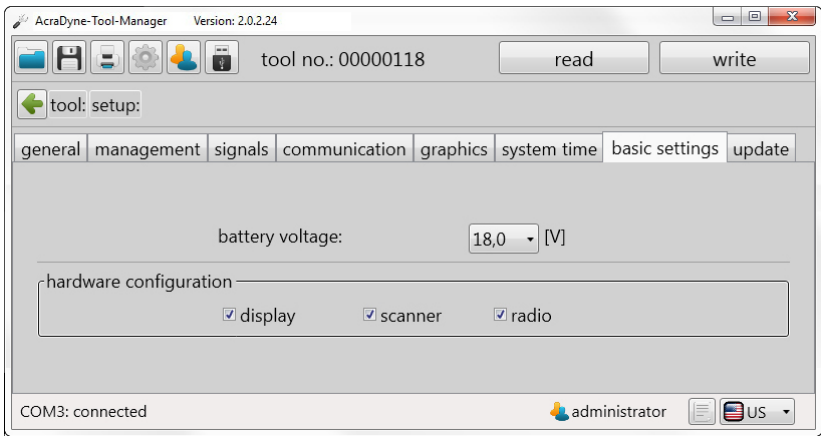
4.2.6. SYSTEM TIME TAB

On the System time tab, the system time can be autonomously compared and synchronized with the time on the connected computer. This function is necessary to correctly record the time stamp of the screwing processes.



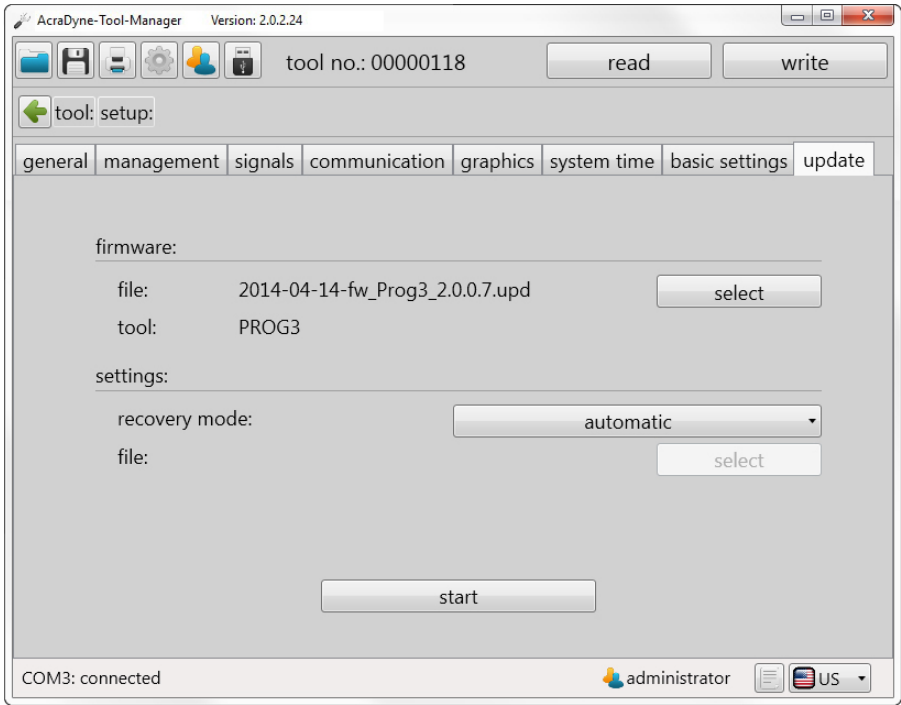
4.2.7. BASIC SETTINGS TAB

This tab is for setting the connected hardware and battery voltage



Basic Settings	
Battery Voltage	14.4 Volt 18.0 Volt (standard setting)
Hardware configuration	Display: Activate/deactivate Scanner: Activate/deactivate Radio: Activate/deactivate Wi-fi

4.2.8. UPDATE TAB



The tool firmware can be updated as needed using the "update" function.

1. Click on "Select"
2. The tool will appear (the tool type from the .upd file must be identical to the current tool type, otherwise it cannot be updated).
3. Set recovery mode to automatic or select from backup file.
4. Start

Leaving the restore mode set to "automatic" is recommended. All previously processed programs and settings will be rewritten onto the tool after the update.

5. CONFIGURING TOOL

To program a tool, connect it to the computer via USB or Wi-fi.



Start Tool Manager, log in, and read out the available tool by clicking on "read." Then you can edit the tool settings as described in the following steps. So the files aren't lost, we recommend securing them under a different name.

5.2.0. BASIC TOOL INFORMATION

The basic tool information is displayed.

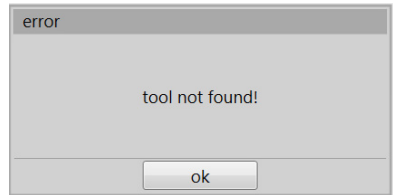
A screenshot of the AcraDyne-Tool-Manager software interface. The window title is "AcraDyne-Tool-Manager Version: 2.0.2.24". The interface includes a toolbar with icons for file operations, settings, and user management. The main area displays tool information for tool no.: 00000118. The information is organized into two columns. At the bottom, there are buttons for "programming" and "setup", and a status bar showing "COM3: connected" and the user "administrator".

tool name:	PROG3-P	firmware version:	2.0.0.7
tool type:	120	firmware date:	09.04.2014
tool no.:	00000118	program:	17
inventory number:	HCXB1025WV40	barcode:	1
sensor type:	HS-PRG3-2000	sequence/job:	3
sensor no.:	HS-K0020	battery voltage:	18,00 [V]
sensor cal. date:	13.03.2014	rpm max.:	400 [rpm]
next calibration:	13.03.2015	torque range:	1,50-12,00 [N-m]
screws until service:	499716		

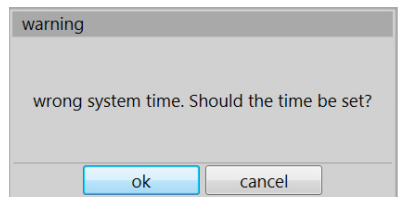
Tool	
Tool name	Manufacturer name
Tool type	Base article no. of the manufacturer
Tool no.	Serial number of the tool
Inventory number	Can be defined under Settings - Administration by the administrator
Sensor type	installed sensor type
Sensor no.	Sensor serial number
Sensor cal. date	Last sensor calibration
Next calibration	Date of the next calibration
Screws until service	At 0 screwing processes, the tool must be serviced and inspected
Firmware version	Firmware version on the tool
Firmware date	Firmware creation date
Program	Number of stored programs available on the tool
Barcode	Number of stored barcodes available on the tool
Sequence/job	Number of stored processes/jobs available on the tool
Battery voltage	Target battery voltage: The tool can only be operated with batteries with this target voltage
Rpm max.	Maximum speed at which the tool can be operated
Torque range	Torque range with which the tool can be operated



In rare cases, the data may not load immediately. Click on "read" again. If that doesn't work, check the Wi-fi connection. If the tool is connected via USB, check the cable connection and USB drivers and repeat the process.



If you receive a notification that the system time is incorrect, the time settings on the computer and the time stored on the tool do not correlate. Click "OK" to adjust the time on the tool. This is especially important to properly record the time stamps activated by the screwing processes.

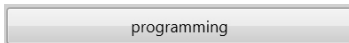


6. THE PROGRAMS

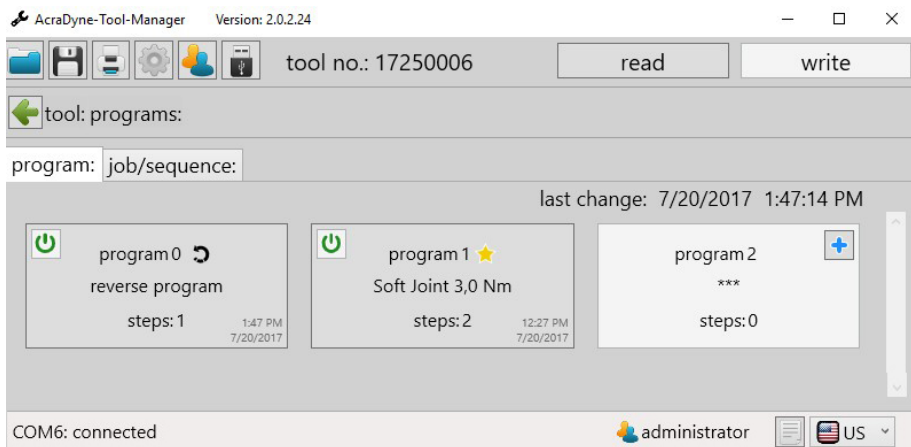


6.1.0. WORKING IN THE PROGRAMS INTERFACE

To edit programs, press the "programming" button on the "Tool" screen (software start screen).



The "program" screen contains a list of the existing programs on the tool



99 programs with 6 steps each are possible.

- Program 0 Unscrew, cannot be deleted
- Program 1 Can be programmed, cannot be deleted
- Program 90 - 99 MFU tool programs (pre-configured)

Thus, 88 programs and 10 process programs are available for customized programming.

Tool: Programs	
Program	With up to six steps Step: Per step with torque or rotational angle control and/or torque or rotational angle monitoring. Single torque, rotation angle step, and unscrewing.
Barcode	Activating a program or a process via a barcode scanned using the barcode scanner.
Sequence/job	Linking several programs to a process

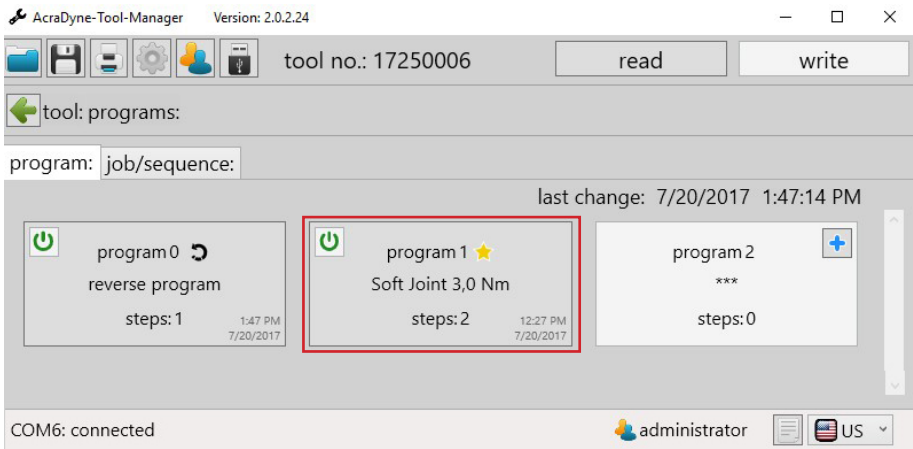


6.1.1. THE ACTIVE PROGRAM

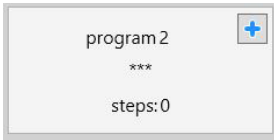
Up to 99 programs are stored in the tools. Programs can be activated or deactivated for better organization. Deactivated programs are ignored by the tool.

	Activate program	Clicking the button turns the Power symbol green
	Deactivate program	Clicking the button highlights the Power symbol and the program in gray

In the program overview, the active program or active process are marked with a yellow star (standard program manual mode).

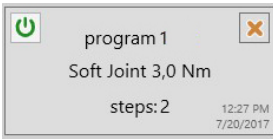


6.1.2. CREATE, DELETE, EDIT PROGRAM



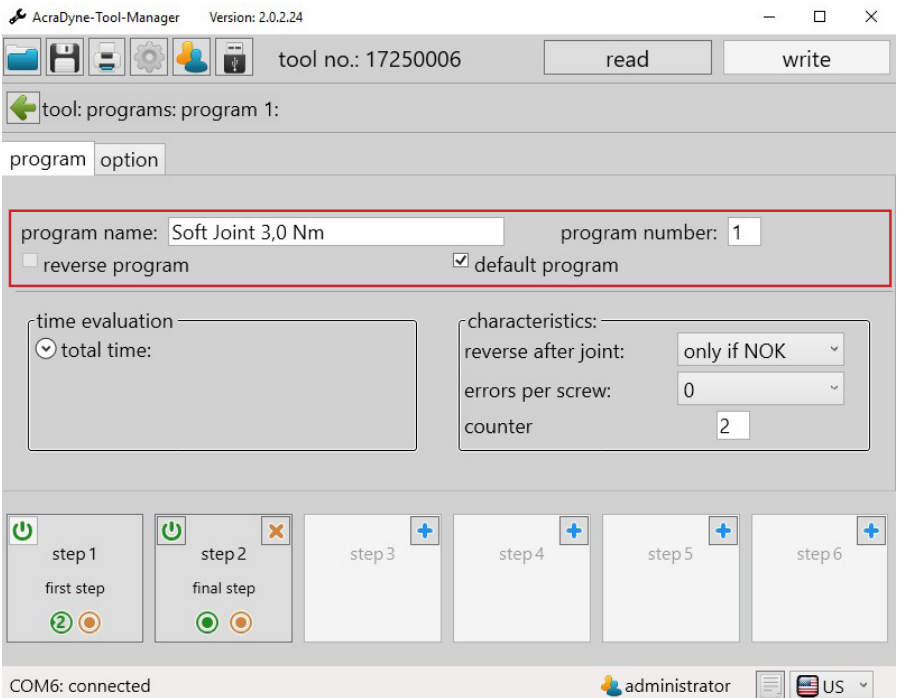
A new program can be created by clicking on the ("+" button).

A program can be edited by clicking on the program button.



A program can be deleted by clicking on the ("x" button).

A program or process can be marked as a "default program" or standard process. This will always be executed if no other program or process is expressly activated via a barcode or an external control unit (manual mode active). This is set in the desired program with the option "default program" or "default sequence/job."





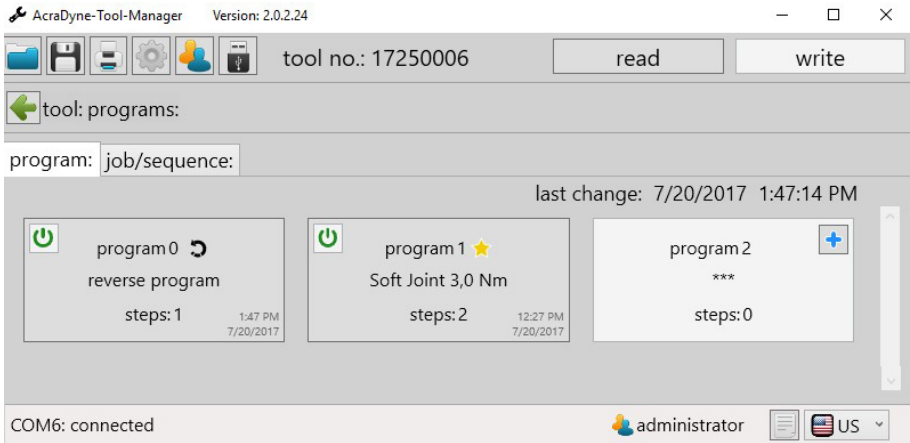
6.2.0. CREATE PROGRAM

6.2.1. PROGRAMMING TAB

The program overview lists the current program, name, and program numbers, whether it is a standard or unscrewing program or a program with an edited actual torque correction factor.

The program time stamp shows the last change date and time.

From this screen, you can also access, the barcode and sequence/job tabs.



6.2.2. PROGRAM TAB



AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 17250006 read write

tool: programs: program 1:

program option

program name: program number:

reverse program default program

time evaluation:

characteristics:

reverse after joint:

errors per screw:

counter:

step 1 first step step 2 final step step 3 step 4 step 5 step 6

COM6: connected administrator US

Program settings

Program name	Entry option for the name of a screwing position for which this program is created.	
Program number	Program number display field	
Unscrew program	A check mark determines if the program is an unscrewing program, which is created to unscrew after a NOK screw joints of a certain program.	
Default program	Activate the editing program (manual mode active)	
Time evaluation	Entry for the maximum total time of the program. Releasing or activating the trigger enables a selection option.	
Characteristics	Unscrew after joint	<p>Tool characteristics settings and application of the unscrewing option.</p> <ul style="list-style-type: none"> • prohibited: The tool blocks the option for unscrewing • only if NOK: Unscrewing only possible in NOK cases • if NOK or OK: A screw can be unscrewed at any time



	Errors per screw	Entry of how often a screwing instance can be repeated. <ul style="list-style-type: none">• disabled: No evaluation is performed, after NOK corrections can be made without restrictions• 1...9: Screwing instance can be repeated as often as indicated
Gang count	Number of screwing processes to be performed with a release	

In the time evaluation, the maximum processing time for this screwing connection can be evaluated. The measurement can start from the release or the initial activation of the trigger.

AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 17250006 read write

tool: programs: program 1:

program option

program name: Soft Joint 3,0 Nm program number: 1

reverse program default program

time evaluation

total time: T total ≤ 0.0 [s] start at: trigger

characteristics:

reverse after joint: prohibited

errors per screw: disabled

counter: 3

step 1 first step step 2 final step step 3 step 4 step 5 step 6

COM6: connected administrator US



The entire screwing process is evaluated. The individual screw joints are documented separately. The settings are set under Strategy - Evaluation.

6.2.3. OPTIONS TAB



AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 17250006

read write

tool: programs: program 1:

program option

target torque correction factor: 1.000 [N-m]/[N-m]

actual torque correction factor: 1.000 [N-m]/[N-m]

reverse until first evaluation

confirm OK

reverse program program 0

record graph Mstart: 0.00 [N-m]

step 1 first step

step 2 final step

step 3 step 4 step 5 step 6

COM6: connected administrator US



Graphic recording MStart is the threshold value for the graphic recording in the selected program.

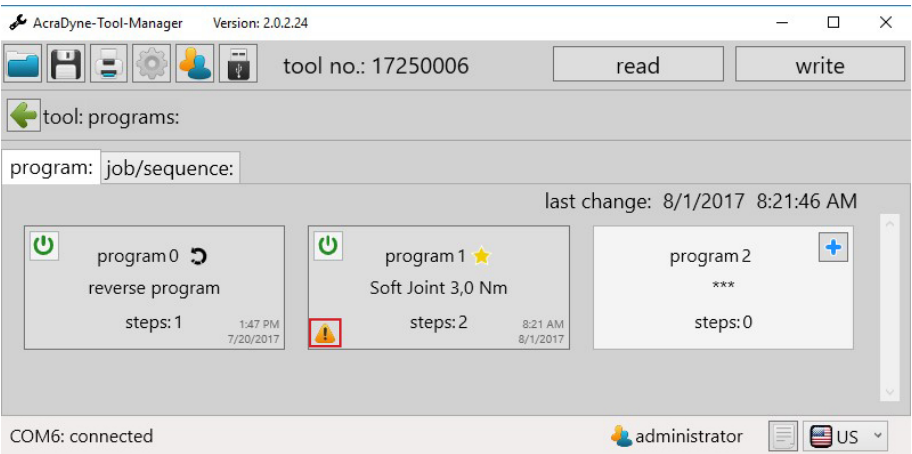
Tool Program Option

Target torque correction factor	The correction factor is required, especially in difficult screwing instances. To ensure a prompt stop at the desired torque, the stop point is adjusted based on the value.
Actual torque correction factor	This correction factor is used to compensate different heads (offset heads) or extensions. For example, in a screwing instance, the screw is tightened with only 2.9 instead of 3 Nm due to a 300 mm extension, the factor is adjusted with a value of 1.034. Thus, at a screwing setting of 3 Nm, 3.102 Nm is used for tightening. The tool thus achieves a higher momentum to achieve the necessary torque of 3 Nm on the screw.



Unscrew until first evaluation	You can use the screwdriver in reverse until the first OK screw joint is generated. For example: All of the screws in a pre-installed part have to be unscrewed to clamp in a new component, and then tightened to the correct torque.
Confirm OK	You must inspect and evaluate the screw in the specified time. Then, the worker must confirm the screw as OK on the display. After the time has run out, and without confirmation, the screw will automatically be evaluated as NOK and documented. This is often used in the aeronautics industry.
Unscrew program	Specifies a separate unscrewing program for this screwing process, if "unscrewing after NOK screw joint" is activated.
Record graph MStart	Torque from which the graphic recording starts.

If you set an actual torque correction factor, this program will be marked directly in the program overview with a small exclamation point.



6.3.0. THE STEPS



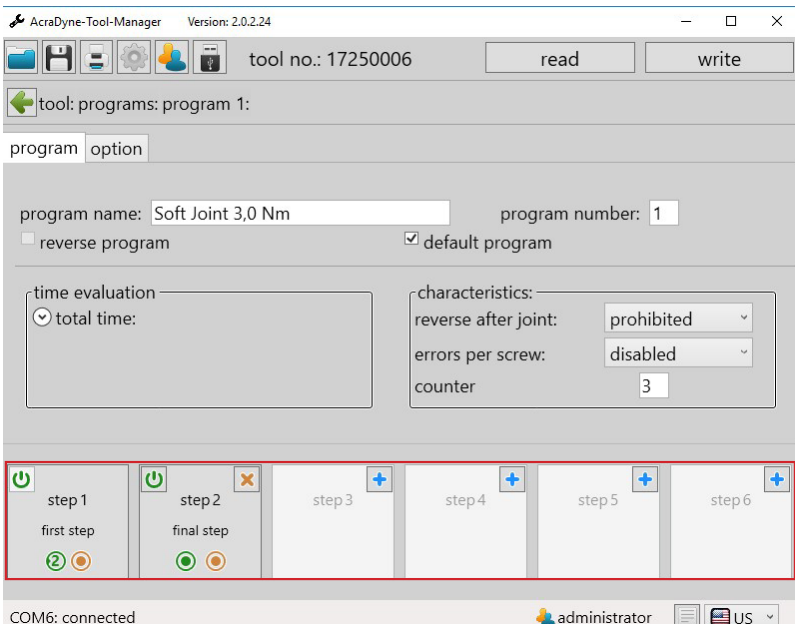
A program process usually consists of several steps; in Tool Manager, up to 6 steps are possible. Each step can be assigned several strategies:

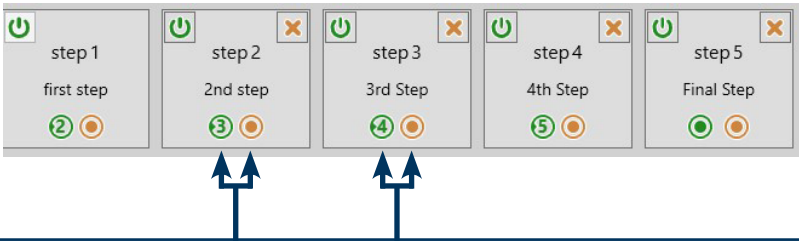
- Torque strategy
- Rotational angle strategy
- Threshold value screwing process
- Torque screw joint with prevailing torque or friction value calculation

The corresponding torque, angle, or time monitoring can be generated for all strategies:

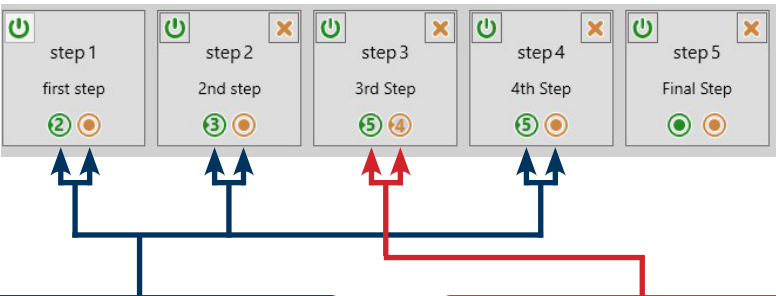
- Torque-controlled with rotational angle monitoring
- Rotational angle-controlled with torque monitoring

Switching condition	If the set value is reached, the step is completed.
Evaluation	Check whether the process has been completed within all specified tolerances (torque, angle and time). Torque limit is important for the safety of the connection, tool and worker
Unscrewing	Unscrewing can be performed in three manners: - Undefined without path specification (without angle) - Defined with angle specification - With torque specification





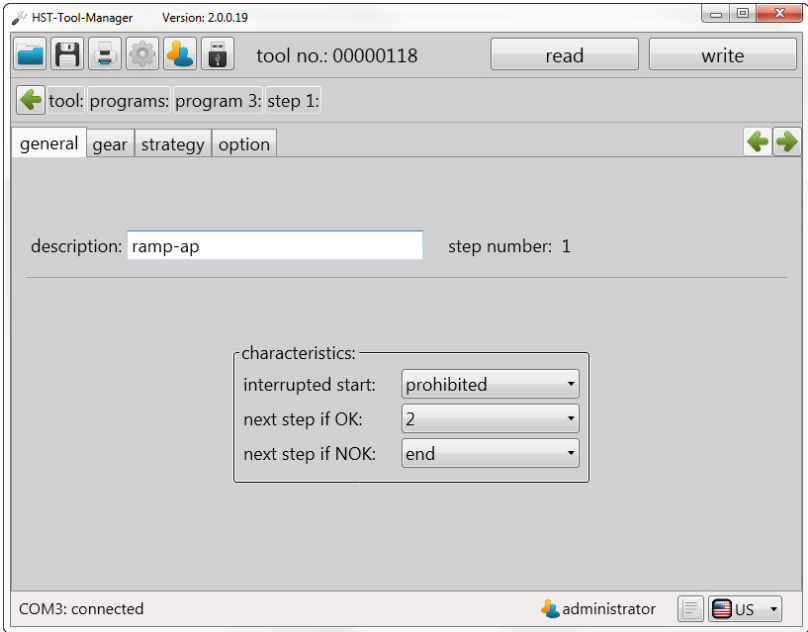
When the step has been successfully completed, the tool will switch to the next step. If the step is not successfully concluded, the screw joint is evaluated as NOK.



When the step has been successfully completed, the tool will switch to the next step. If the step is not successfully concluded, the screw joint is evaluated as NOK.

When the step has been successfully completed, the tool will switch to the final tightening step. If the step is not successfully concluded, an interim step is activated to, e.g. easily unscrew and retighten the screw.

6.3.1. GENERAL TAB



Program Step Settings - General

Description	Name of the step (free entry)	
Step number	Number of the currently displayed program step. Max. 20 characters	
Characteristics	Interrupted start	Releasing the trigger after starting a screwing process. Max. 20 characters <ul style="list-style-type: none"> prohibited restart current step back to step 1
	Next step if OK	After a successful screwing process, the tool continues to work in step XY or ends the screwing process and evaluates it. <ul style="list-style-type: none"> End Jump to stop (XY)
	Next step if NOK	After NOK screw joints, the tool ends the screwing process or switches to the specified step. <ul style="list-style-type: none"> End Jump to stop (XY)



6.3.2. GEAR TAB

AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118 read write

← tool: programs: program 3: step 1:

general gear strategy option ← →

direction of rotation: CW gear: 0,200 [s]

control method: rpm rpmtarget: 250 [rpm]

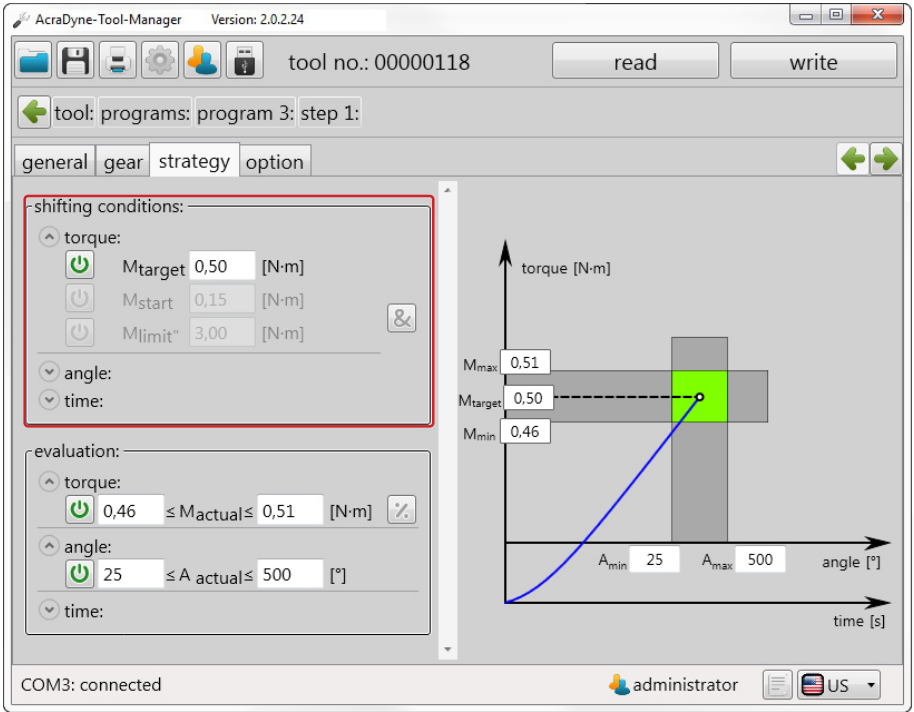
stop mode: no stop

COM3: connected administrator US

Program Step Settings - Gear

Direction of rotation	Left (CCW) / right (CW)
Control method	Speed / torque-speed / angle-speed Depending on the settings for the tightening process, the control type can be set to speed only (set speed), torque-speed (variable speed depending on the torque and setting) or angle-speed (variable speed depending on the angle and setting)
Stop mode	Changes the shut-off characteristics in the respective screwing instance <ul style="list-style-type: none"> • No stop: Motor is left running • Soft stop: Delayed braking • Stop: Standard braking • Fast stop: Braking with current reversal • Stop & release: Rotate brake by 2° in the opposite direction (the bit/nut adapter is relieved of tension to comfortably remove the tool)
RPM target (speed)	Speed during this step
Gear (start-up ramp)	Time during which the target speed of this step should be reached.

6.3.3. TIGHTENING PROCESS TAB



Program Step Settings - Strategy

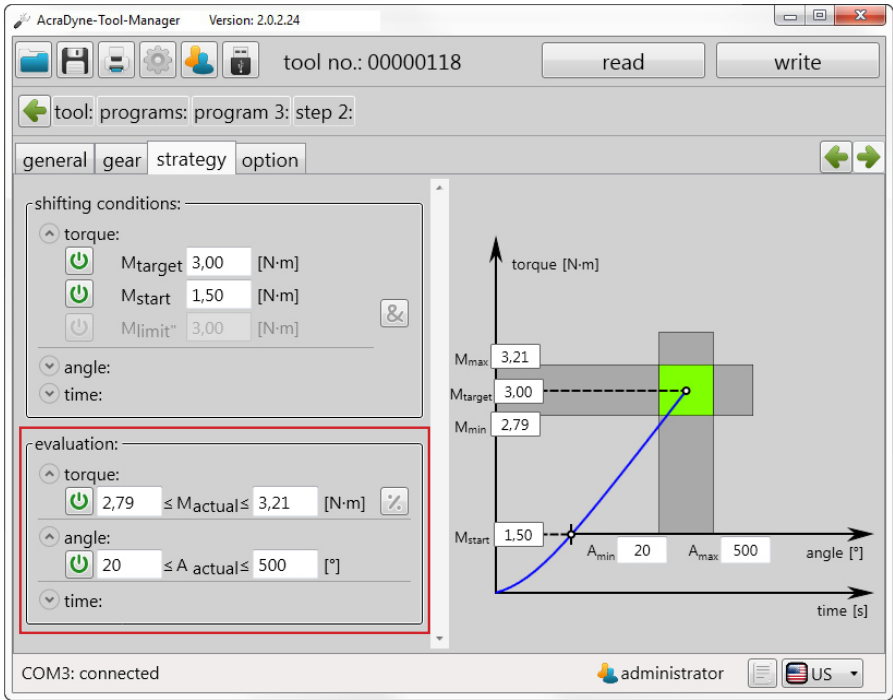
Switching condition	<p>Torque</p> <ul style="list-style-type: none"> • Mtarget: Target torque value • Mstart: Start of the angle counting • Mlimit: Torque limit • Mlimit*: When reaching the upper limit, the tool is stopped and the screwing process is evaluated as NOK.
Shifting condition	<p>Torque</p> <ul style="list-style-type: none"> • Mtarget: Target torque value • Mstart: Start of the angle counting • Mlimit: Upper torque limit (only for angled screw joints) • Mlimit*: Lower torque limit in this step



If you only set an angle or time as the target value, you must program a torque limit for emergency shut off to protect workers and the machine from excessive transfers of force.



The "evaluation" function is available to, e.g., correctly record faulty screw joints, "idle screwing processes" or time exceedances. Corresponding thresholds can be programmed for all parameters.



Program Step Settings - Strategy

Program Step Settings - Strategy	
Evaluation	Torque
	<ul style="list-style-type: none">• Mact: Setting for the lower and upper limit of the torque. If the torque is outside this range, the screw joints is evaluated as NOK.• Wact: Setting for the lower and upper limit of the rotational angle. If the rotational angle is outside this range, the screw joint is evaluated as NOK.• Tact: Setting for the lower and upper limit of the time required for this screwing process. If more or less time is needed from the time the trigger is activated, the screw joint is evaluated as NOK.

6.3.4. OPTIONS TAB



AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118

read write

← tool: programs: program 3: step 2:

general gear strategy option →

correction factor angle: 1,000 [°]/[°]

MDI monitoring

MTP: 1,00 [N·m]

±MDP: 0,50 [N·m]

detect securing/prevaling torque

consider securing/prevaling torque

COM3: connected administrator US

Program Step Settings - Option

Correction factor angle	<p>Adjusting the angle rate</p> <p>If the tool is, for instance, equipped with an offset head, the correction factor angle must be adjusted to the specifications of the offset head.</p>
MDI monitoring	<p>In this control method, the current is measured and evaluated as a redundancy to the torque.</p> <p>If it is outside the defined threshold values, the display will show a NOK indicator and, on the lower part of the display, it will show the information "MDP +" or "MDP-".</p> <p>This comparison may only be programmed in the last, final tightening step.</p> <ul style="list-style-type: none"> • MTP: Setting for when the measurement should start • ±MDP: Setting for how far the redundancy may deviate



MDI monitoring

detect securing/prevaling torque

measurement method

- average
- shut off value
- max. value
- min value
- average

Detect securing/prevaling torque

The prevailing torque (friction value determination) can only be determined per screwing instance in a specially programmed step.

Measurement method:

- **Shut off value** The shut-off value is the last determined value in a step.
- **Maximum value** The tool determines the maximum value measured in the step.
- **Minimum value** The tool determines the minimum value measured in the step.
- **Average value** The tool determines the average value measured in the step.

MDI monitoring

consider securing/prevaling torque

torque display

- without securing/prevaling torque
- with securing/prevaling torque
- without securing/prevaling torque

Consider securing/prevaling torque

In the final tightening process, the target torque value taken into account is added to the prevailing torque (friction value).

Torque display selections:

- with securing/prevaling torque
- without securing/prevaling torque



The prevailing torque should be determined during tightening, e.g., in step 2 and taken into account in step 3 during the final tightening process.

7. SAMPLE PROGRAMS



7.1.0. STRATEGY TORQUE-CONTROLLED / ANGLE-MONITORED

Shutting off via torque with angle monitoring.

To do this, the shut-off torque (M_{target}) and the start of the angle measurement (quick value (M_{start}) or threshold) must be entered in the switching condition window.

In our first step, the tool should reach a torque of 2.0 Nm. The angle must be at least 3000° and must not exceed 3400° to avoid an "idle screwing process" or screwing an already tightened screw.

The screenshot shows the AcraDyne-Tool-Manager software interface. The window title is "AcraDyne-Tool-Manager Version: 2.0.2.24". The tool number is "00000118". The interface is divided into several sections:

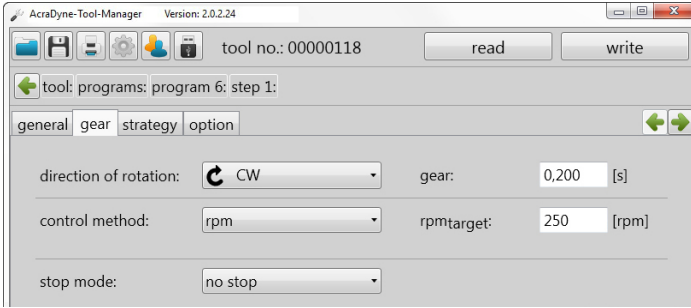
- Shifting conditions:**
 - torque:**
 - M_{target} 2,00 [N-m]
 - M_{start} 1,00 [N-m]
 - M_{limit} 0,00 [N-m]
 - angle:**
 - time:**
- Evaluation:**
 - torque:**
 - angle:** $3000 \leq A_{actual} \leq 3400$ [°]
 - time:**

On the right, a graph plots torque [N-m] on the y-axis against angle [°] on the x-axis. The y-axis has markers for M_{start} at 1.00 and M_{target} at 2.00. The x-axis has markers for A_{min} at 3000 and A_{max} at 3400. A blue curve starts at the origin, rises to M_{start} at A_{min} , and then continues to rise towards M_{target} . A vertical green bar highlights the angle range from A_{min} to A_{max} .

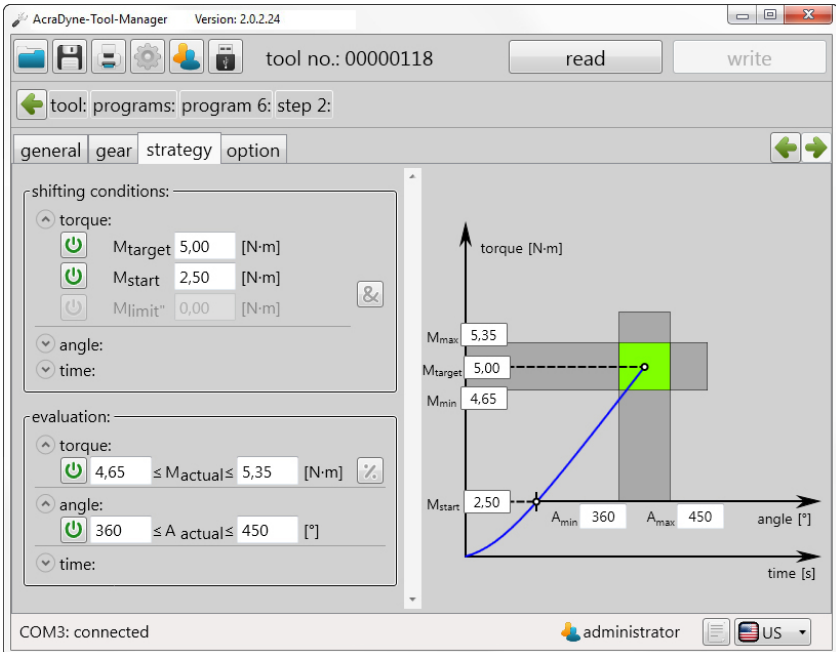
At the bottom of the window, it shows "COM3: connected" and the user "administrator".



We created a starting ramp as a drive which reaches 250 rotations per minute within 0.2 seconds. The stop mode "no stop" is selected to achieve a dynamic transition to the second step. Then, the tool should switch to step 2 (final tightening process), which we created as "step 2" under "General" - "Next step if OK."

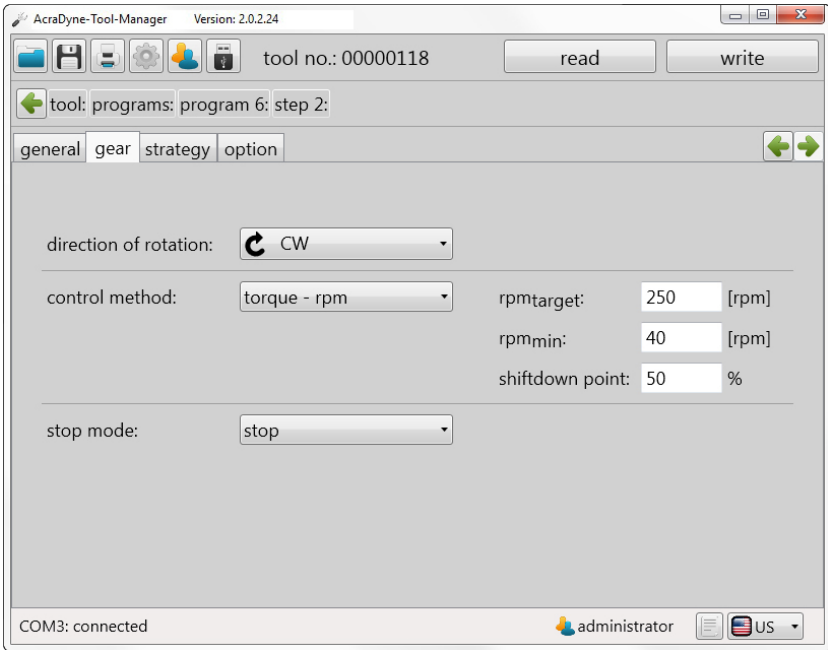


In our second step, the tool should tighten the screw with a torque of 5.00 Nm. The measurement of the angle should start at 2.5 Nm. The screwing instance is soft; the evaluation of the rotational angle achieved is between the thresholds 360° to 450°. The shut-off torque must be between the thresholds, 4.65 Nm and 5.35 Nm.





Under "Gear," we set the control method "torque-rpm" to reduce the speed from 250 RPM to 40 RPM when the threshold value is reached (50% of the torque target value = 2.5 Nm). After reaching the target torque, the tool switches off and evaluates the results which we set to "End" under "General" - "Next step if OK."





7.2.0. STRATEGY ROTATIONAL ANGLE-CONTROLLED / TORQUE-MONITORED

Shutting off via the angle with torque monitoring:

To do this, the shut-off angle and the starting torque of the angle measurement (quick value (Mstart) or threshold) must be entered in the switching condition window. The Mstart can be activated, but if it is not, the angle counting will start immediately at the beginning of the step.

In our first step, the tool should reach a torque of 2.0 Nm. The angle must be at least 3000° and must not exceed 3400° to avoid an "idle screwing process" or the screwing an already tightened screw. We created a starting ramp as a drive which reaches 250 rotations per minute within 0.2 seconds. The stop mode "no stop" is selected to achieve a dynamic transition to the second step. Then, the tool should switch to step 2 (final tightening process), which we created as "step 2" under "General" - "Next step if OK."

The screenshot shows the AcraDyne-Tool-Manager software interface. The window title is "AcraDyne-Tool-Manager Version: 2.0.2.24". The tool number is "00000118". The current step is "program 7: step 1". The "strategy" tab is selected, showing the following settings:

- shifting conditions:**
 - torque:**
 - Mtarget: 2,00 [N-m]
 - Mstart: 1,00 [N-m]
 - Mlimit: 0,00 [N-m]
 - angle:**
 - time:**
- evaluation:**
 - torque:**
 - angle:**
 - 3000 ≤ A actual ≤ 3400 [°]
 - time:**

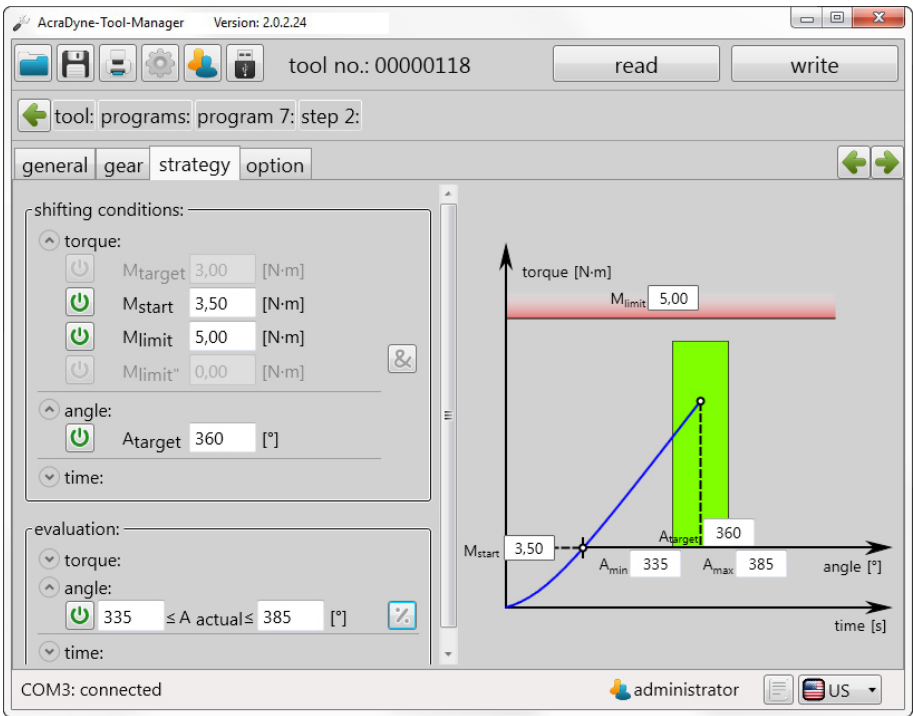
The graph on the right shows torque [N-m] on the y-axis and angle [°] on the x-axis. A blue curve starts at the origin and rises to a point labeled Mtarget (2,00) at an angle of 3400°. A vertical green bar highlights the region between 3000 and 3400 degrees on the x-axis. The y-axis also has a point labeled Mstart (1,00) at an angle of 3000°. The x-axis is labeled with A_min (3000) and A_max (3400). The time axis is labeled "time [s]".

COM3: connected

In our second step, the tool should tighten the screw with a rotational angle of 360°. It should start measuring the torque at 3.5 Nm and stop the tool if the 5 Nm limit is exceeded and evaluate the screwing instance as NOK. An angle of at least 335° to maximum 385° must be achieved for the screwing instance to be evaluated as OK. As a drive, we set a constance 40 RPM on the "gear" set tab. Then, the tool should evaluate and complete what we set as "End" under "General" - "Next step if OK."



Entry 3.5 Nm	Mstart in switching condition
Entry 5.0 Nm	Mlimit in switching condition
Entry 5.0 Nm	Wtarget in switching condition
Entry 335° & 385°	Wact in evaluation



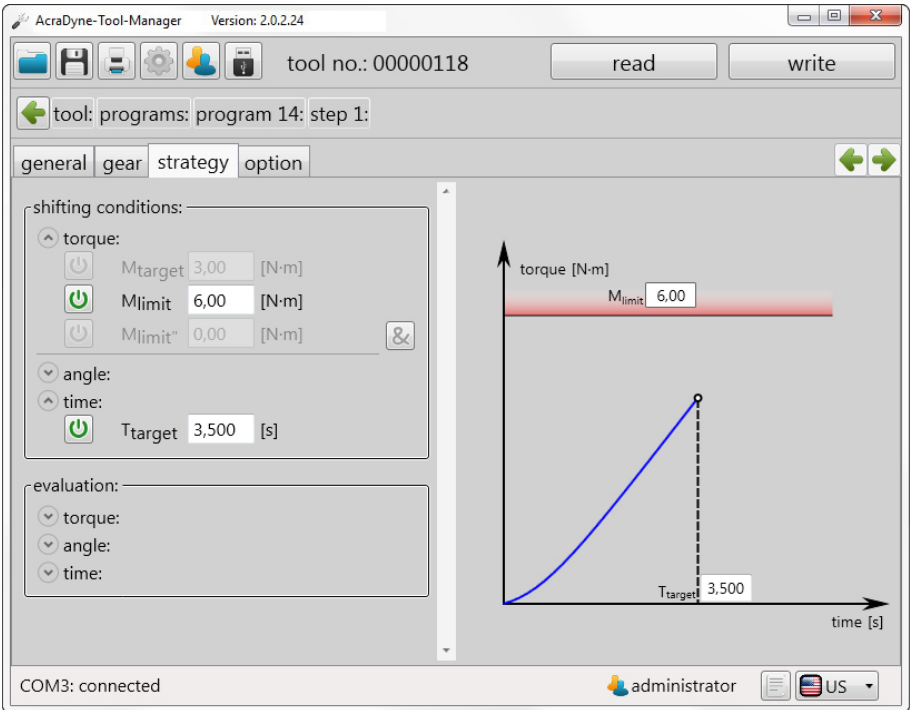


7.3.0. MAXIMUM TIME LIMIT

Like an angle screw joint with an additional time limit for the step. Reaching the time limit results in a stop.

Optionally, screwing processes can also be programmed based on time. Programming is done in the same manner as angle tightening

Example: The tool screws for 3.5 seconds and then switches off. Just to be certain, we set an Mlimit so the tool switches off at 6 Nm at the latest if this torque is achieved within the 3.5 seconds. If necessary, it can be expanded by evaluation criteria (torque, angle, time).



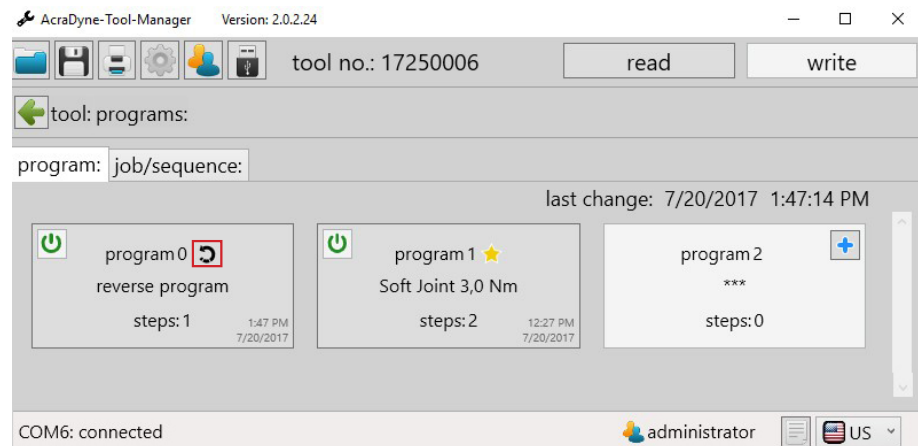
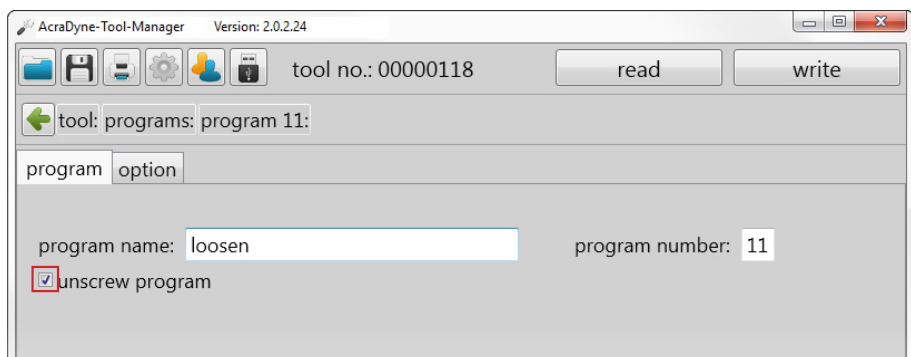
7.4.0. CUSTOMIZED UNSCREWING PROGRAM



Any program can be configured to be a customized unscrewing program. All of the parameters and evaluation criteria can be defined the same as they are in the programs.

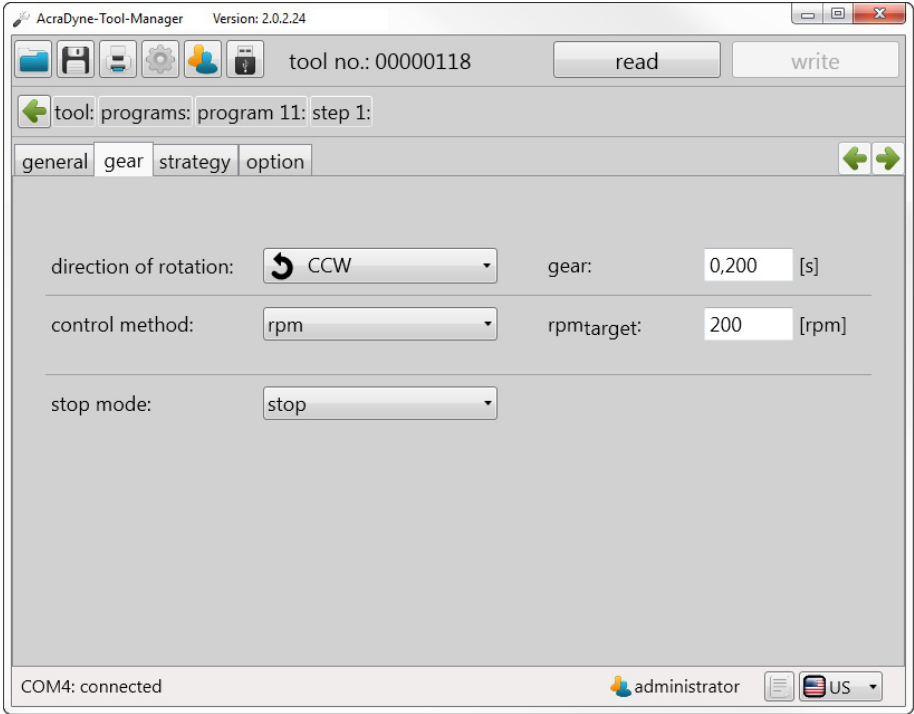
A customized unscrewing program is for unscrewing a special screw if it is not properly screwed in and executing the program counting tasks.

If a separate unscrewing program is activated, it is represented by a left rotation symbol in the program overview for a quick overview. If no unscrewing program is stored, the screwdriver uses the standard unscrewing program 0.





When defining an unscrewing program, you have to pay attention to the threading direction of the screw. If you have set a clockwise screwing direction in the screwing program, the unscrewing program must be set to counterclockwise under "step" > "gear."



To assign the unscrewing program to a program, the unscrewing program must be stored in the corresponding program under "Options."

You can find program settings on page 33.



8. THE BAR CODE

With all tools which are equipped with a barcode scanner, the program can be selected directly using the barcode. Two barcodes are needed for several applications.

A program can be started using a barcode. It is also possible to link several barcodes to a sequence/job. In this scenario, the program is not started until all of the barcodes have been scanned in the right order.



A barcode can have a maximum of 64 characters.

8.1.0. DEFAULT SETTING

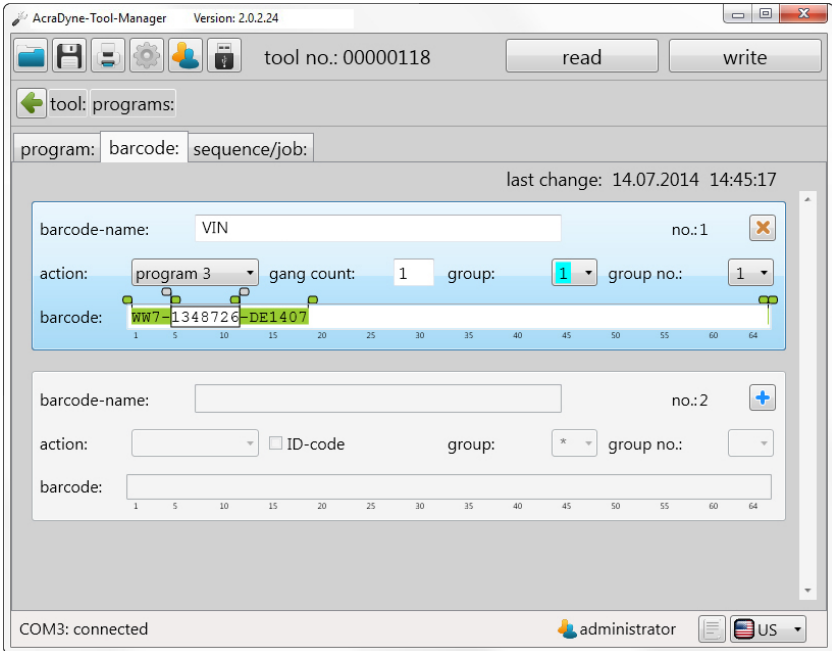
Make sure that your tool is equipped with a barcode scanner. This is activated as the hardware default on all tools with barcode scanners.

In administrator mode, the scanner can be activated or deactivated at any time under "Setup" - "Basic settings."

In addition, under "General" - "Release via," the scanner is activated or deactivated depending on the selection.

8.2.0. SURFACE BARCODE

You can find the interface for creating and defining the function of a barcode under Programming/Barcode. The green fields define the part of the barcode for the evaluation. The gray field defines the part of the barcode for the indicator on the tool display. Maximum 10 characters.



WW7-1348726-DE1407

Will not be evaluated and can be variably modified (e.g. continuous serial number). For example: Indicator on the display

The entire barcode will be saved. The green fields define the area to be evaluated. The variable part, defined using the gray sliders, can be at the beginning, middle or end of the barcode and is not evaluated. This part is also shown on the display for controlling purposes. Furthermore, it can later be found in the evaluation in the functions for the graphic and statistics. The green and gray sliders can be moved while holding down the left mouse button.

The first barcode screen is active; deactivated barcodes are grayed out.

Activate screens by clicking 

Up to 99 barcodes can be stored. A deactivated screen is always displayed. As soon as the second screen is activated using the "+" symbol, a new, deactivated screen will appear below it.

8.3.0. SCREEN WITH A BARCODE



To activate a program directly using a barcode, usually only a part of the barcode is necessary. For this selection and to determine the display on the tool, the screen is separated into different selection fields.

barcode-name: no.:1

action: gang count: group: group no.:

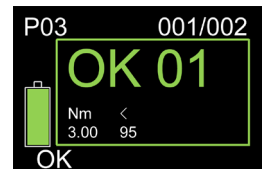
barcode:

Example WW7-1348726-DE1407



Programs: Barcode	
Barcode-name	Name of the barcode
Action	Program number of the program to be released by the barcode.
Gang count (number of screws)	Number of screws to be screwed in. If a number >0 is entered here, a release is executed and no further barcodes are necessary/permitted for the release. Now the tool can execute the program. If "scanning" is entered as the action, further scans will be requested until a barcode with a number of screws (gang count) is read in.
Group	Here, several barcodes can be assigned to a group. If only one barcode should be used, select Group 1.
Group no.	The barcode position in the group is defined here.

In our example, we have 2 entries, i.e. the tool specifies two screw joints, of which, on our display, one has already been successfully executed see tool display top right.





8.3.1. SCREEN WITH SEVERAL BARCODES

If several barcodes are to be used for a release, further entry screens must be activated.

Example with two barcodes:

First barcode with serial number "SERIAL-NO-632424"

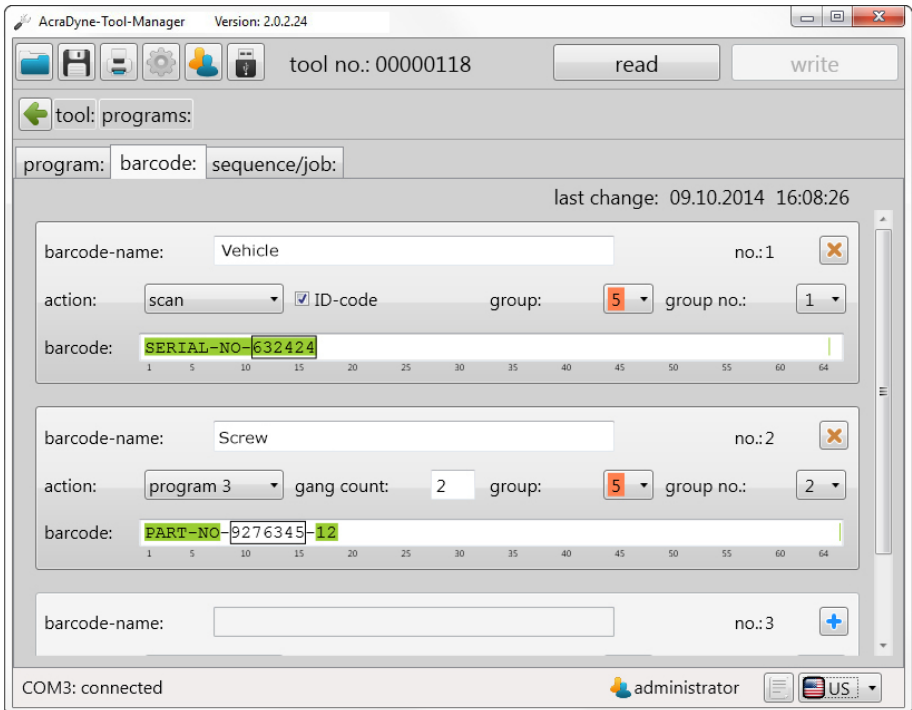


SERIAL-NO-632424

Second barcode with part number necessary for the program selection. "PART-NO-9276345-12"



PART-NO-9276345-12





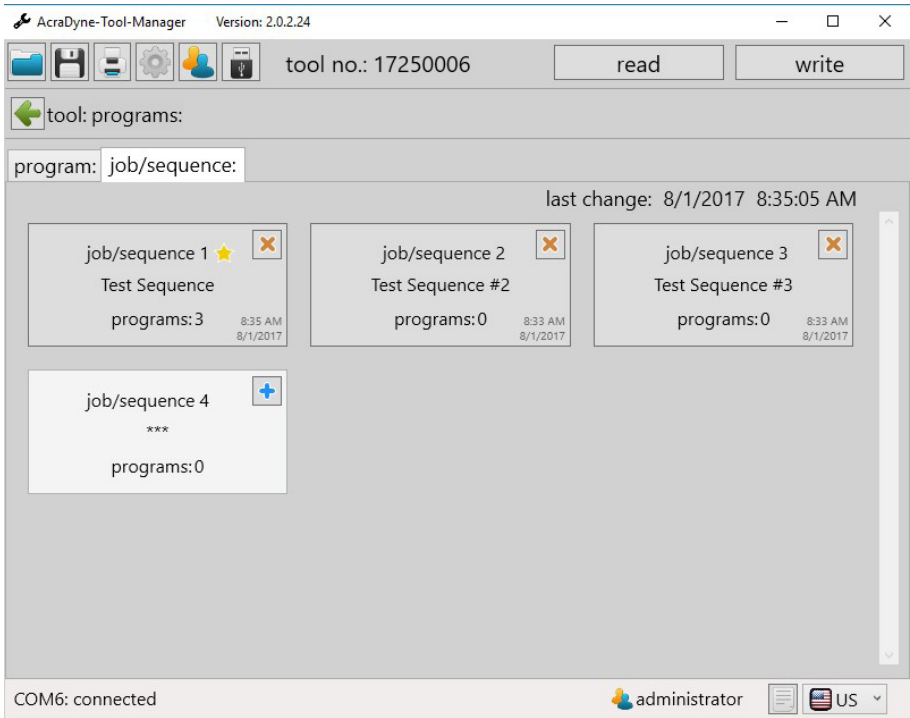
Programs: Barcode	
Barcode	Enter the entire barcode into the window.
Action	The program to be released by the barcode. For example, "Program 3." Example: For "Vehicle," scanning is selected; further scans will be requested until "screwing process" with 2 as the number of screws is read in.
ID code	By activating the ID code, the scanned barcode, for instance the serial number of the component, is shown in the results list and the evaluation.
Group	Here, several barcodes can be assigned to a group. In our example of the 5th group.
Group no	The barcode position in the group is defined here.

In our example, barcode 1 is the serial number of the component "632424" and is assigned No. 1.

The second barcode, "PART-NO-9276345-12" is assigned No. 2.







9. JOB

With Tool Manager, it is possible to create process programs. The program sequence/job of the individual programs to be processed sequentially are defined here. This function allows a process with several sequentially processed programs by scanning a barcode.



To program a new process/job, press the button 

Left clicking on process 1 opens the programming window. Here, you can set the number of programs and how screwing processes occur per program.










tool no.: 17250006
read
write

← tool: programs; job/sequence 1:

description:
job/sequence-number: 1

default job/sequence

1. program:	<input type="text" value="1"/>	counter:	<input type="text" value="2"/>
2. program:	<input type="text" value="3"/>	counter:	<input type="text" value="4"/>
3. program:	<input type="text" value="2"/>	counter:	<input type="text" value="1"/>
4. program:	<input type="text" value="empty"/>	counter:	<input type="text" value="0"/>

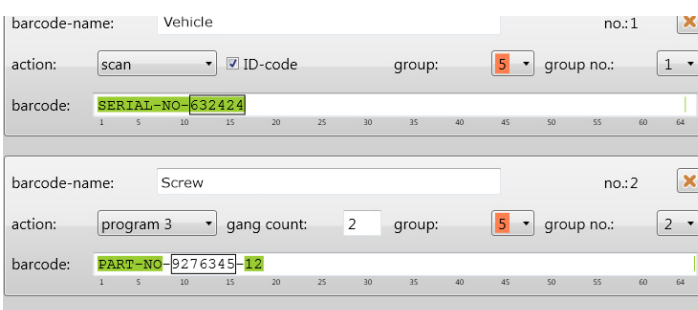
COM6: connected
 administrator
 
 US

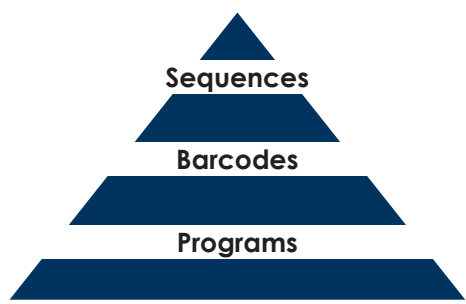
Programs: Sequence/Job	
Description	Name of the sequence/job (free entry)
Job/sequence number	Number of the process Maximum 9 sequences / jobs are possible
Default job/sequence	See standard / default program. Active process is marked with a yellow star in the same manner as the programs.

job/sequence 1 ★ ✕

Test Sequence

programs: 3 8:35 AM
8/1/2017

<p>Program</p>	<p>There are several ways to access a sequence:</p> <ol style="list-style-type: none"> 1. Define the sequence as the standard. Tool always starts in manual mode with this process. 2. Start the sequence with a barcode. To do this, select, enter, etc. process 1 under barcode under "action"  <ol style="list-style-type: none"> 3. Release via wireless (Wi-fi) 4. Release via a set time 5. Release via trigger confirmation
<p>Gang count (number of screws)</p>	<p>The number of screws or screwing positions entered here overwrite the number from the program and barcode. If the number of OK entered here is reached, the next step of the process is activated.</p> <p>Tool Manager works with a hierarchy for the number of screws:</p> <ul style="list-style-type: none"> - The number of screws in the process overwrite those from the barcode and programs. - The number of screws from the barcode overwrites those from the programs.



10. STATISTICS AND GRAPHICS

10.1.0. STATISTICS

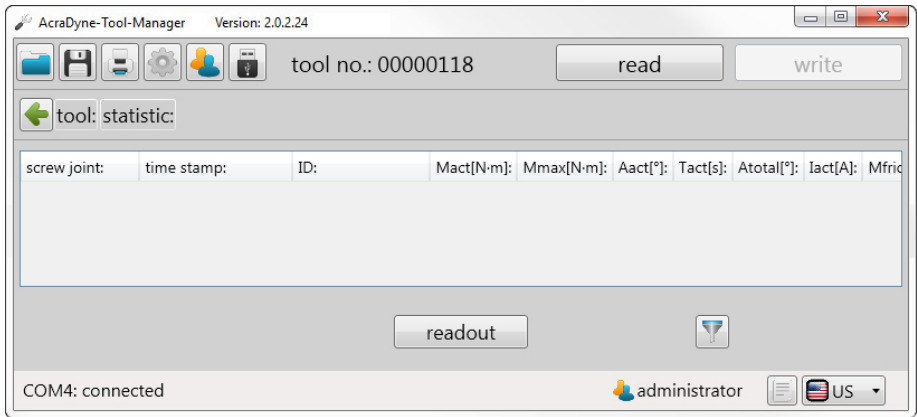
The tool stores up to 150,000 results on the internal data storage device (Micro SD card: 4 GB) which can be read out by Tool Manager.



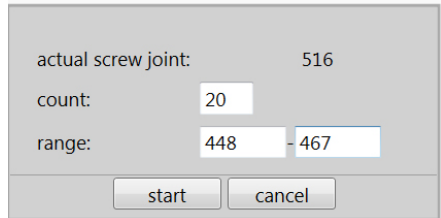
The tool must be connected to the computer via USB or Wi-fi to be read out.

Click on the button on the start page. 

The "Statistics" interface will open



To read out statistics from the tool, click on the "readout" button. You can enter the data to be read out in the pop-up window that opens.



Under "count," enter either how many values you want to read out (e.g: the last 20 values) or under the "range," the exact screwing processes (e.g.: Screw joint no. 448 - 467).

Then click on "start."



The more screw joints you read out, the longer the computer will need to present the data.

Tool Manager loads and displays all relevant data.

AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118

read write

tool: statistic:

	screw joint:	time stamp:	ID:	Mact[N-m]:	Mmax[N-m]:	Aact[°]:	Tact[s]:	Atotal[°]:	Iact[A]
1	379	22.05.2014 13:35:47	NO_NUMBER_SET	3.02	3.02	309,00	0,986	424	1,95
2	380	22.05.2014 13:35:56	NO_NUMBER_SET	3.03	3.03	309,00	1,019	367	2,05
3	381	22.05.2014 13:36:04	NO_NUMBER_SET	3.03	3.03	299,00	0,975	387	2,01
4	382	22.05.2014 13:36:13	NO_NUMBER_SET	3.04	3.04	312,00	1,001	550	2,05
5	383	22.05.2014 13:36:23	NO_NUMBER_SET	3.02	3.02	311,00	0,997	544	2,14
6	384	22.05.2014 13:36:32	NO_NUMBER_SET	3.01	3.01	304,00	0,973	534	2,02
7	385	22.05.2014 13:36:42	NO_NUMBER_SET	3.02	3.02	307,00	0,985	426	1,97
8	386	22.05.2014 13:36:54	NO_NUMBER_SET	3.03	3.03	311,00	1,005	499	2,10
9	387	22.05.2014 13:37:05	NO_NUMBER_SET	3.03	3.03	305,00	0,977	484	2,05
10	388	22.05.2014 13:37:14	NO_NUMBER_SET	3.03	3.03	308,00	0,982	546	1,98
11	389	22.05.2014 13:37:27	NO_NUMBER_SET	3.01	3.01	328,00	1,056	612	2,08
12	390	22.05.2014 13:37:39	NO_NUMBER_SET	3.01	3.01	315,00	1,011	552	1,74
13	391	22.05.2014 13:37:50	NO_NUMBER_SET	3.03	3.03	310,00	0,994	536	1,95
14	392	22.05.2014 13:38:01	NO_NUMBER_SET	3.01	3.01	301,00	0,962	596	2,03

readout

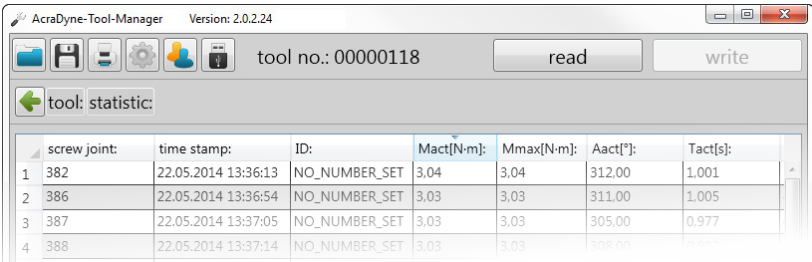
COM4: connected administrator US

STATISTIC READOUT

Screw joint	Screw joint number
Time stamp	Date and time when screwing process was executed
ID	Scanned barcode with which the program released
Mact[Nm]	Torque in Nm with which the screw was tightened
Mmax[Nm]	Mact + Mfriction
Wact[°]	Angle degrees with which the screw was tightened
Tact[s]	Time required for the screwing process
Wtotal[°]	Angle degrees after activating the trigger
Iact[A]	Current at shut-off torque
Mfriction[Nm]	Determined friction value (prevailing torque)
Mstart[Nm]	Start of the angle counting
Tstart[s]	Time at which the step started
TMstart[s]	Time at which the start torque was achieved (Mstart)
Program	Number of the executed program
Step	Number of the executed steps
Result	OK / NOK evaluation

10.1.1. DRAG & DROP

Column widths can be adjusted as needed to obtain a better overview (similar functionality as Microsoft® Excel). Furthermore, each column can be sorted downward or upward. To do this, click on the column head or increase/reduce the column width by pulling on the edge of the column. In addition, entire columns can be moved using drag & drop. To do this, pull upward on the column head with the left mouse button pressed. These can thus be arranged further forward or toward the back.



AcraDyne-Tool-Manager Version: 2.0.2.24

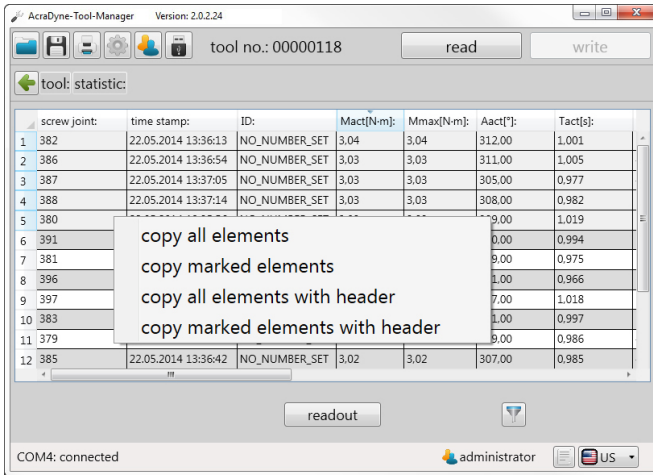
tool no.: 00000118 read write

tool: statistic:

	screw joint:	time stamp:	ID:	Mact[N-m]:	Mmax[N-m]:	Aact[*]:	Tact[s]:
1	382	22.05.2014 13:36:13	NO_NUMBER_SET	3.04	3.04	312.00	1.001
2	386	22.05.2014 13:36:54	NO_NUMBER_SET	3.03	3.03	311.00	1.005
3	387	22.05.2014 13:37:05	NO_NUMBER_SET	3.03	3.03	305.00	0.977
4	388	22.05.2014 13:37:14	NO_NUMBER_SET	3.03	3.03	308.00	0.982

10.1.2. COPY ELEMENTS

To copy elements, they can be marked individually by holding down the mouse button, several lines can be marked. By right clicking, all of the elements can be marked. Furthermore, you can select whether the header should be copied or not. This data can be directly entered into Excel and other programs.



AcraDyne-Tool-Manager Version: 2.0.2.24

tool no.: 00000118 read write

tool: statistic:

	screw joint:	time stamp:	ID:	Mact[N-m]:	Mmax[N-m]:	Aact[*]:	Tact[s]:
1	382	22.05.2014 13:36:13	NO_NUMBER_SET	3.04	3.04	312.00	1.001
2	386	22.05.2014 13:36:54	NO_NUMBER_SET	3.03	3.03	311.00	1.005
3	387	22.05.2014 13:37:05	NO_NUMBER_SET	3.03	3.03	305.00	0.977
4	388	22.05.2014 13:37:14	NO_NUMBER_SET	3.03	3.03	308.00	0.982
5	380					299.00	1.019
6	391					300.00	0.994
7	381					309.00	0.975
8	396					310.00	0.966
9	397					307.00	1.018
10	383					310.00	0.997
11	379					309.00	0.986
12	385	22.05.2014 13:36:42	NO_NUMBER_SET	3.02	3.02	307.00	0.985

Context menu options:

- copy all elements
- copy marked elements
- copy all elements with header
- copy marked elements with header

readout

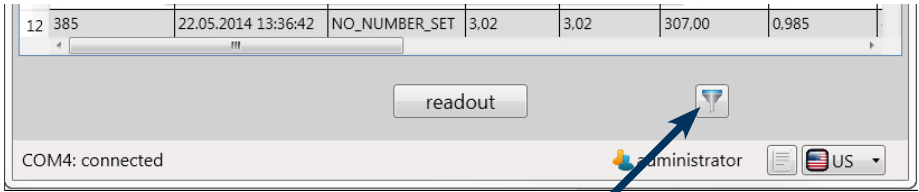
COM4: connected administrator US



Holding the CTRL key, you can copy different elements into different lines (with empty lines) by left clicking.

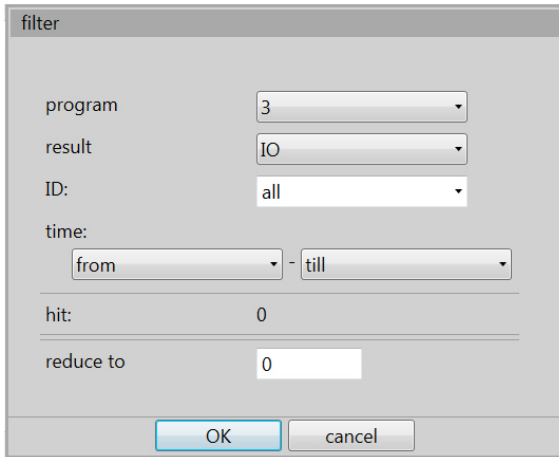
10.1.3. FILTER

To use the filter function, click on the filter symbol on the lower right of the software interface.



Filter

The filter window will open. You can then filter the results based on program, result, or a particular time of day. Furthermore, the existing hits (correlations with your selection) are shown directly. These can also be reduced if you are shown too many values.



10.3.0. GRAPHICS

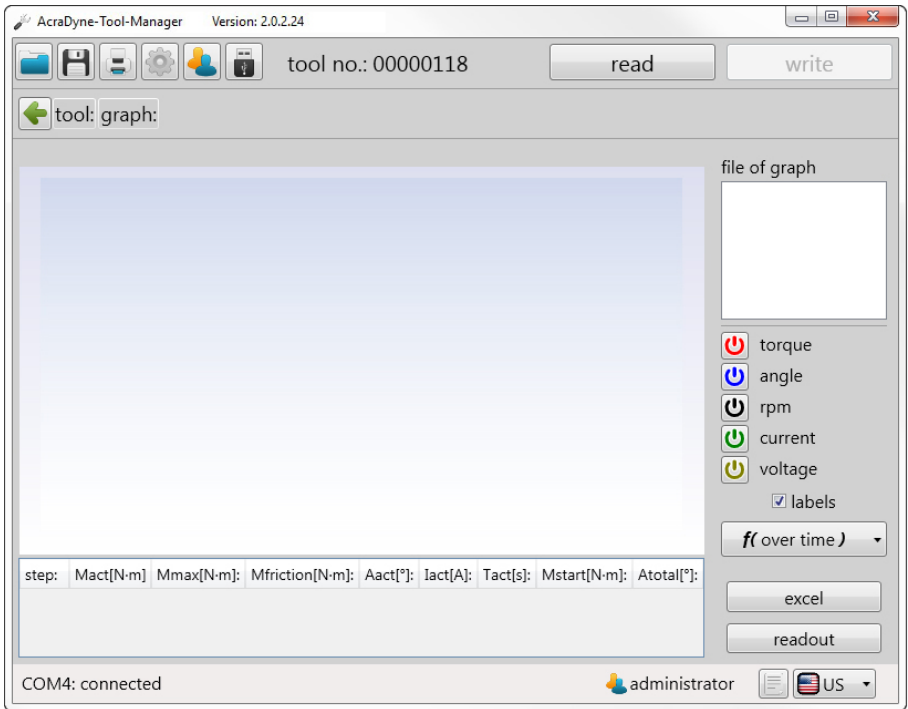
The tool stores up to 50,000 curves on the internal data storage device (2 GB) which can be read out with Tool Manager.



Data can be read only when the device is connected

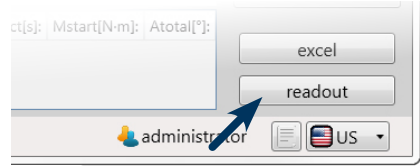
Click on the button on the start page.

The "Graphics" interface will open

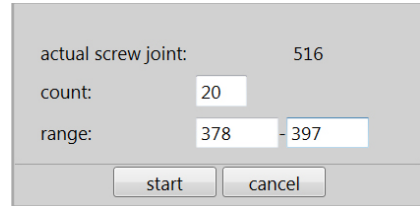


10.3.1. READ OUT DIAGRAMS

By clicking on the "readout" button, you can download the desired data from the tool in the same manner as statistics.

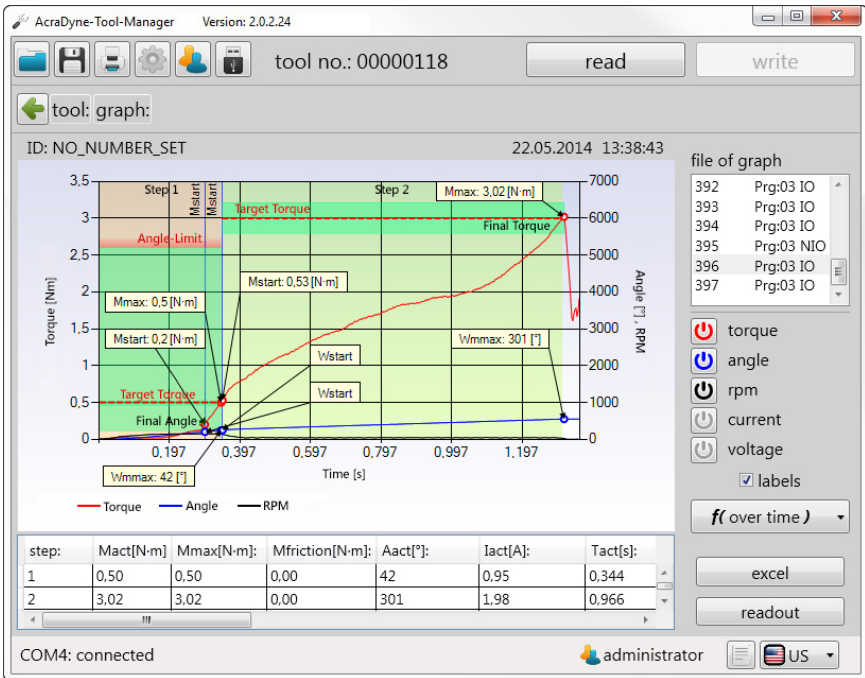


As with statistics, a pop-up window will open in which you can define how many values you want to read out.



Under "count," enter either how many values you want to read out (e.g: The last 20 values) or under the "range," the exact screwing processes (e.g.: Screw joint no. 150 - 160). Then click on "start."

Tool Manager has loaded the last 20 screw joints and displays the last screw joint.



NOTICE

If a lot of data is read out, saving it as a .dat file is recommended because this format saves memory in comparison to .xml files.

10.3.2. GRAPHIC INTERFACE

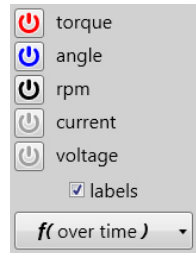
When selecting the graphic file, you can always look at one of the screw joints. Click on the corresponding screw joint. This will be highlighted in gray. In addition, you directly see the screw joint number (396), the program (Prg:03) and the result of the screw joint (OK).

file of graph	
392	Prg:03 IO
393	Prg:03 IO
394	Prg:03 IO
395	Prg:03 NIO
396	Prg:03 IO
397	Prg:03 IO

In the diagram, only the parameters are recorded which were defined prior to the screwing processes under "Setup - Graphics - Measurand."

The following parameters are available:

- Torque
- Angle
- Rpm
- Current
- Voltage



By clicking on each button, these can be added and removed for the display in the diagram graphic.

If you remove the "labels" check mark, the label information in the graphic disappears. This helps gain a better overview for some screw joints.

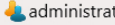
With the drop-down menu at the bottom, you can either set the graphic display "over time" or "over angle."



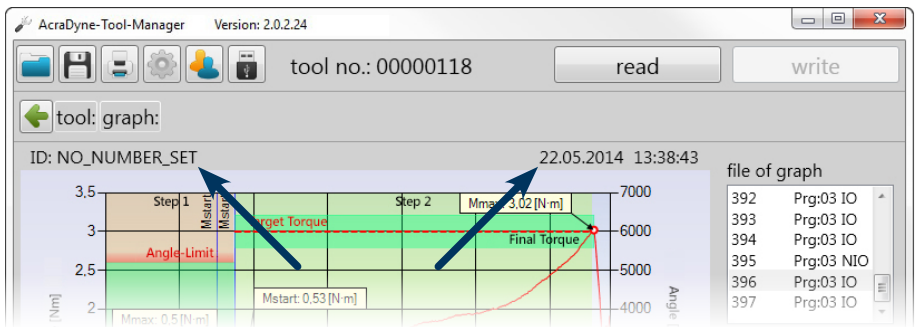
Note, if the settings under "Setup - Graphics - Measurand" are not set, these options are not presented in the graphic and cannot be selected.

In the lower section of the graphic window, you are shown a table with all of the values for this screw joint, divided into the different steps of the screwing process.

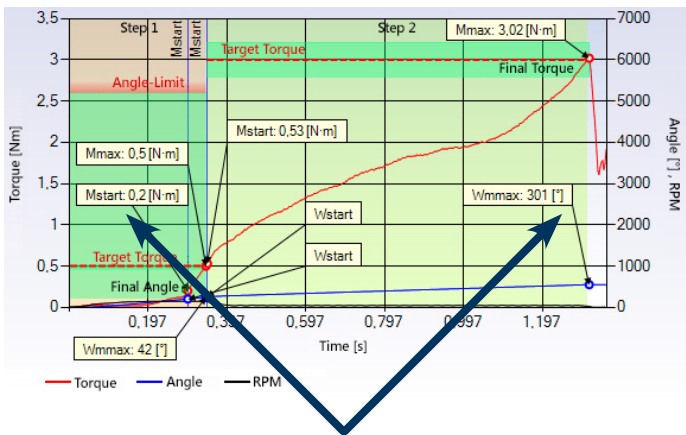
step:	Mact[N-m]	Mmax[N-m]:	Mfriction[N-m]:	Aact[°]:	Iact[A]:	Tact[s]:
1	0,50	0,50	0,00	42	0,95	0,344
2	3,02	3,02	0,00	301	1,98	0,966

COM4: connected 

SCREW JOINT VALUES	
Step	Screw joint step
Mact[Nm]	Torque in Nm with which the screw was tightened
Mmax[Nm]	Mact + Mfriction
Mfriction[Nm]	Determined and factored-in friction value. Value is only displayed if the prevailing torque is taken into account in the corresponding program.
Wact[°]	Angle degrees with which the screw was tightened
Iact[A]	Current at shut-off torque
Tact[s]	Time required for the screwing process
Mstart[Nm]	Start of the angle counting
Wtotal[°]	Angle degrees after activating the trigger
Tstart[s]	Time at which the step started
TMstart[s]	Time at which the start torque was achieved (Mstart)
WSp[°]	Angle degrees at which the step change occurred
U[V]	Battery voltage in the step
RPM	Speed in the step
Ttotal[s]	Time required for the screwing step
Evaluation	Screwing instance OK or NOK
Reason for shut-off	Reason why the tool stopped. Positive and negative reasons possible
NOK reason	Reason why the screwing instance was evaluated as NOK



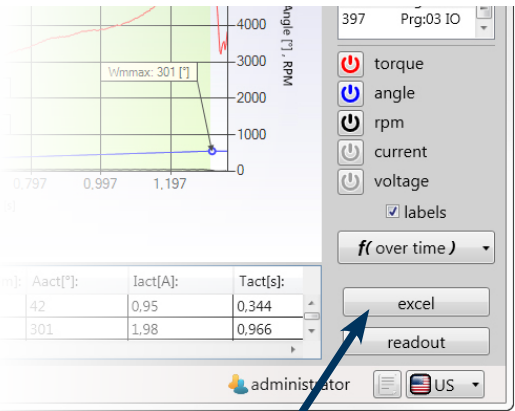
The date and time of the screwing process is displayed above and to the right of the graphic. On the left side is the "ID" which is the scanned barcode with which the program was released. If it shows "NO NUMBER SET," no barcode has been scanned for release.



Within the graphic, the programmed steps are displayed using different colored backgrounds.

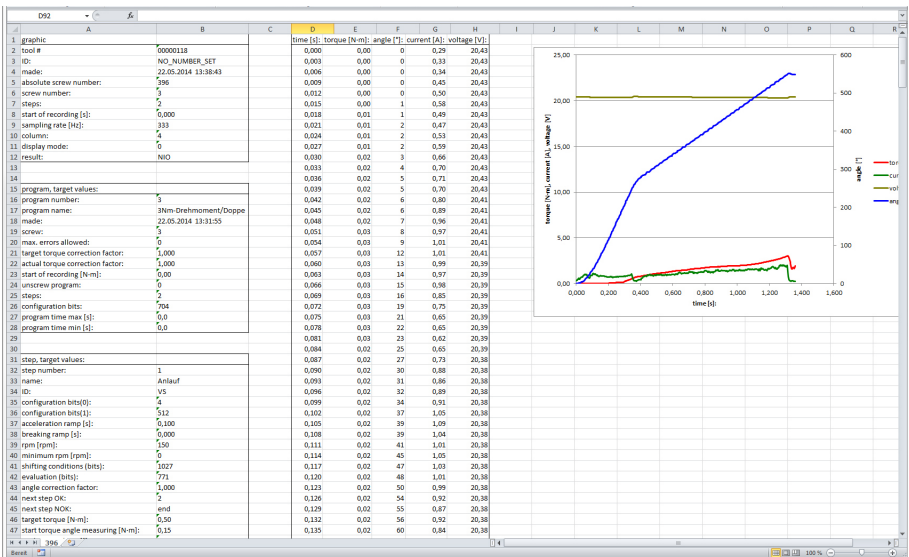
10.4.0. EXCEL EXPORT

To export the data to Excel, click on the "excel" button.



Export

After clicking on the "excel" button, Excel will open with the corresponding screw joint. At the same time, a "save as" window opens in which you can define the save location for the file. The file name automatically includes the absolute screw number. These can, however, be renamed or supplemented.



11. SAVING AND LOADING PARAMETERS

11.1.0. SAVE / LOAD

In Tool Manager, it is possible to save all settings data for the tool in a .xml file. The current status of the tool is frozen in the file and can thus be referenced for analysis. With this .xml file, a duplicate of the tool can also be created. Individual programs or Wi-fi settings can also be copied.

Only statistical and graphical data must be read out and save separately.

In the start window, click on the button 

The save location will be displayed; select the desired save location and give the file a name.

Then, click on save.

The file appears in your folder as a file.

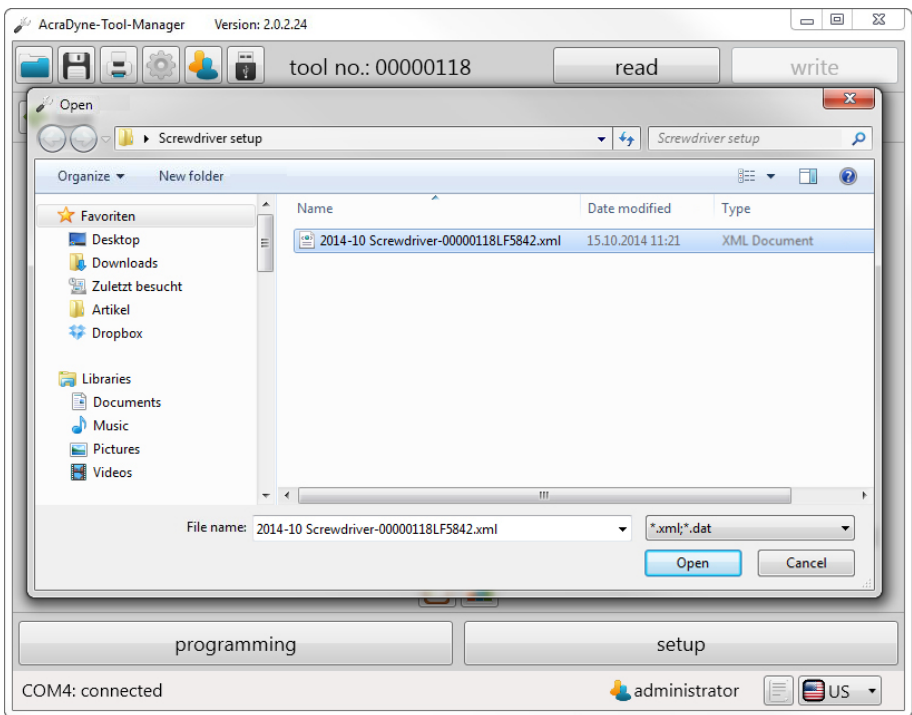
11.2.0. LOAD / RESTORE

Tool Manager offers you the option of loading complete or partial settings and programs into the tool. For this work you require administrator mode.

First, the tool on which modifications or a data import or restore are to be performed has to be read out. Then, open the file from which the data is to be transferred.

In the start window, click on the button 

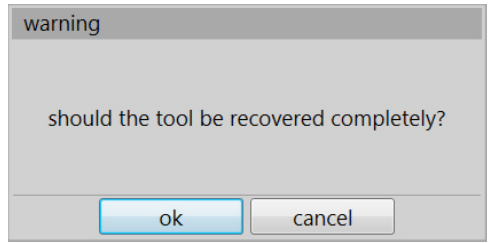
The selection window for selecting the file will open.



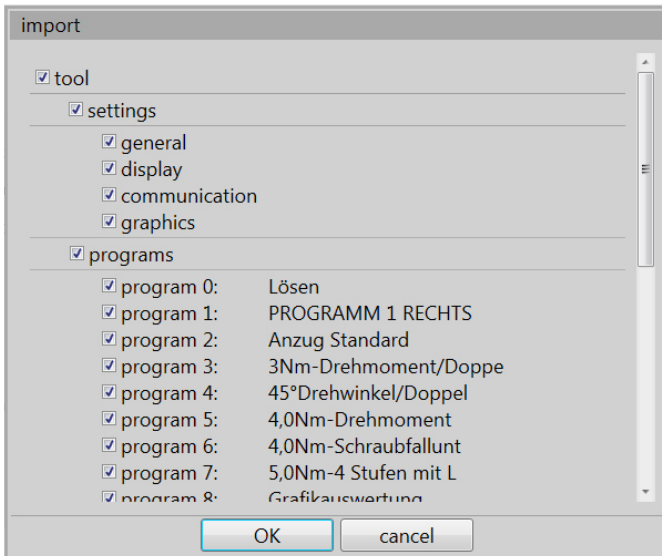
Select the file and press "Open."

The restore window will open

If an older tool file is to be loaded, the software will recognize this based on the serial number and will ask if the tool should be completely restored. Via the restore pop-up window, you can select whether you want to completely or only partially restore or import the tool. If you click on "ok," the tool file will be overwritten. If you click on "cancel," the import window will open in order to import individual parts, e.g.: settings, programs, barcodes, or processes.



If you load a tool file from another tool, the import query window will open directly. By adding and removing, individual or all information can be loaded. Click on "OK." Then click on the "write" button. The data is transferred to the connected tool.



12. ATTACHMENT AND DATA

12.1.0. TROUBLESHOOTING

Fault	Cause	Action
No connection to the tool	No USB cable connected	Connect the USB cable to the tool and PC
	USB cable not properly plugged in	Check the connection
	No drivers installed	Install drivers
	Firewall blocking the connection	Deactivate firewall or issue a release in the firewall
	Wi-fi connection lost	Restore the Wi-fi connection or wait until the tool automatically connects
Tool does not start after NOK screw joint	Incorrect settings for the NOK evaluation	Setting under Program - General
Tool does not start	No program created	Setting in program overview
	Incorrect program defined as standard	Setting on the main program screen
Unscrewing not possible	Unscrewing deactivated	Setting on the main program screen
	Unscrewing after screwing process deactivated	
Tool rotates in the incorrect direction	Rotational direction incorrectly entered	Setting under Step - Gear
Tool shuts-off too high	Speed too high	Setting under Step - Strategy or Program - Options
	Incorrect shut-off point selected	
	Incorrect program activated	Setting under "The active program"
Angle window too high/low	Upper and lower limit incorrect	Setting under Step - Strategy
Tool shows reaction/display off	Battery too low	Connect a charged battery
	Tool is in energy-saving mode	Press trigger
Motor gets too hot	Speed too low	If the speed is too low and the torque is too high, this may lead to the motor overheating. Check tool programming
	Soft screw joint at max. torque on the tool	A tool with a higher torque may be necessary
Graphic doesn't load	Save graphics function deactivated	Setting under Setup - Graphics



Troubleshooting includes tips which we generally check first. The list is not complete and should merely serve as inspiration for troubleshooting as faults are often the result of programmer/calibration technician errors.

If you cannot solve a problem yourself, you are welcome to contact us at (503) 254-6600, or 1-800-852-1368.

12.2.0. ABBREVIATIONS IN TOOL MANAGER

Abbreviation	Meaning
Iact	Current at shut-off torque
Mact	Torque value in Nm with which the screw was tightened
Mlimit	Torque limit
Mmax	Mact + Mfriction
Mfriction	Determined friction value (prevailing torque)
Mtarget	Target torque value
Mstart	Start of the angle counting
Ttotal	Time required for the screwing process
Tact	Time required for the screwing process
Tstart	Time at which the step was started
Ttotal	Total time required for the screwing process
TMstart	Time at which the start torque was achieved (Mstart)
U	Battery voltage in the step
RPM	Speed in the step
Wtotal	Angle degrees after activating the trigger
Wact	Angle degrees with which the screw was tightened
Wlimit	Rotational angle limit
Wtarget	Target rotational angle value
WSp	Angle degrees at which the step change occurred



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