

PERFECT integration

MANOSKOP® 766 DAPTIQ®

STAHLWILLE®

LET'S GET CONNECTED MANOSKOP® 766 DAPTIQ®



OVERVIEW

Contents

6 **MANOSKOP® 766 DAPTIQ®**

8 **CONNECTION POSSIBILITIES**
10 One tool. Maximum connectivity.
12 ISM bandwidth (868/915 MHz)
13 Bluetooth
14 Open Protocol / VW-XML
16 Cable
17 Stand-alone
17 Individual solutions

18 **OPERATING MANUAL**
20 Radio module + base station
25 Bluetooth Low Energy module
27 ToolController Hardware/Software
29 Cable module

30 **PROGRAMMING**
32 Open Source Interface
34 GuideMaster
42 Integration into Worker Guidance Systems

43 **SERIAL COMMANDS**

51 **PROGRAMMING EXAMPLES**



YOUR ADVANTAGE:
OUR TECHNOLOGY.

The MANOSKOP® 766 DAPTIQ® fits perfectly into semi-automated, networked production environments and workflows - and offers maximum flexibility in terms of integration.

The electromechanical MANOSKOP® 766 DAPTIQ® angle-controlled torque wrench is the hand tool for the Industry 4.0 era. From production and quality assurance to maintenance and repair: Wherever central systems monitor, document or control your processes, it integrates seamlessly with your production or work environment, helping you make your operations faster, more efficient and safer.



ELECTROMECHANICAL

The MANOSKOP® 766 DAPTIQ® is an electromechanical angle-controlled torque wrench. The applied torque is measured electronically. User feedback by mechanical actuation, visual and audible alerts.

Electromechanics thus offers the best of both worlds: On the one hand, the absolute precision, the wide range of programming options and the documentation capability, which can only be offered by an electronic torque wrench. The familiar, clearly perceptible tactile feedback of a traditional mechanical torque wrench 'click' is widely appreciated, and not just by professional users.

Electromechanical triggering, video here:
http://qr.stahlwille.com/mo2ou9

COMMUNICATIVE

Thanks to its bidirectional interface, the MANOSKOP® 766 DAPTIQ® can receive instructions and "radio" into the network wirelessly using frequency ranges 868 MHz, 915 MHz or BLE (Bluetooth), or with a cable.

MULTI-PURPOSE

In coordination with the higher-level control system, MANOSKOP® 766 DAPTIQ® automatically configures itself for the next bolted joint. The OLED display can show the user important information and even give instructions.

FLEXIBLE

STAHLWILLE discloses all control commands of the MANOSKOP® 766 DAPTIQ®. This allows the system integrator on the customer side to use exactly the control commands they need to integrate the tool into the production workflows as desired.

PRECISE

MANOSKOP® 766 DAPTIQ® transmits at extremely short communication intervals. The higher-level control system thus receives all relevant data to be able to monitor the bolted joint in real time, for added control.

DURABLE

The trigger mechanism of the MANOSKOP® 766 DAPTIQ® operates virtually wear-free, gives the tool a long service life, and guarantees a high level of investment security.

DOCUMENTATION CAPABLE

Provided that you have the necessary expertise in integration, the MANOSKOP® 766 DAPTIQ® even allows you to automatically read out joint data for documentation purposes and store it in the company's systems. For more efficient processes and proven bolted joint safety.

MANOSKOP® 766 DAPTIQ®
VERSATILE AND EFFICIENT IN EQUAL MEASURE

The MANOSKOP® 766 DAPTIQ® is available in different combinations and measuring ranges and thus adapts to the requirements of your specific application and to the conditions on site.

The MANOSKOP® 766 DAPTIQ® covers ten different torque ranges and can be combined with various communication interfaces as well as a wide range of insert tools. It offers maximum flexibility for tightening torques from 1 N·m to 1000 N·m. The display deviation is just ± 2 percent for torque and ± 1 percent for angle of rotation. When it comes to power supply, you can choose between rechargeable batteries, commercially available batteries or high-performance Li-ion batteries from STAHLWILLE.



766/2



766/4



766/10





Li-ion power
With the optional DAPTIQ® power pack, you can supply the MANOSKOP® 766 DAPTIQ® with energy for longer: It includes a charging station and two Li-ion batteries, each of which lasts for at least eight hours of operation. Thanks to a special bayonet lock, the change is effortless and quick.

Battery-operated
If you decide against the Li-ion battery or do not have a charged battery to hand, you can also operate the MANOSKOP® 766 DAPTIQ® with the AAA NiMh batteries included with delivery, or four commercially available AAA batteries.

MANOSKOP® 766 DAPTIQ®

Code	No.	N·m	ft·lb	in·lb	mm	b mm	h mm	L mm	L_F mm	S_F mm	g
96502701	766/1	1–10	0.7–7.5	9–90	9x12	28	23	226	188	17.5	370
96502702	766/2	2–20	1.5–15	18–180	9x12	28	23	226	188	17.5	380
96502704	766/4	4–40	3–30	36–360	9x12	28	23	252	214	17.5	420
96502706	766/6	6–60	4.5–45	54–540	9x12	28	23	393	355	17.5	810
96502710	766/10	10–100	7.4–75	90–900	9x12	28	23	466	428	17.5	1085
96502720	766/20	20–200	15–150	180–1800	14x18	28	23	547	516	25	1361
96502740	766/40	40–400	30–300	360–3600	14x18	28	23	687	656	25	1765
96502765	766/65	65–650	48–480	580–5800	22x28	30.6	25.6	890	890	55	3222
96502780	766/80	80–800	60–600	720–7200	22x28	30.6	25.6	1158	1158	55	4572
96502800	766/100	100–1000	74–750	900–9000	22x28	30.6	25.6	1343	1343	55	4990

ACCESSORIES

Code	Name	Info
52110203	Wireless module 868 MHz	Micro USB
52110204	Base station 868 MHz	USB A
52110215	Cable module 766	Micro USB
52110221	Bluetooth Low Energy module 766	Micro USB
96502811	Power pack 766	1 x charging station & 2 x Li-ion batteries
54101195	Li-Ion battery	-
54100060	Charging dock & charger	Fits 54101195
52110216	Programming cable radio module	-
52110217	USB cable 3m	-



CONNECTION POSSIBILITIES



ONE TOOL.
MAXIMUM CONNECTIVITY.

The MANOSKOP® 766 DAPTIQ® can connect to your PC and your systems in various ways, be it wirelessly or by cable.

The MANOSKOP® 766 DAPTIQ® offers users optimal freedom of movement with maximum connectivity, as it can be connected to your systems wirelessly in two ways – use the industry-established ISM frequency band (Industrial/Scientific/Medical bandwidth) in the frequency range 868 or 915 MHz, or if you prefer to use the standardised Bluetooth Low Energy protocol, then select the Bluetooth Low Energy module. The addition of a ToolController with Open Protocol interface enables the establishment of a connection via TCP/IP. All with the highest security standard and AES encryption (only ISM), of course.

1 ISM BANDWIDTH (868/915 MHZ)

(radio module + base station)

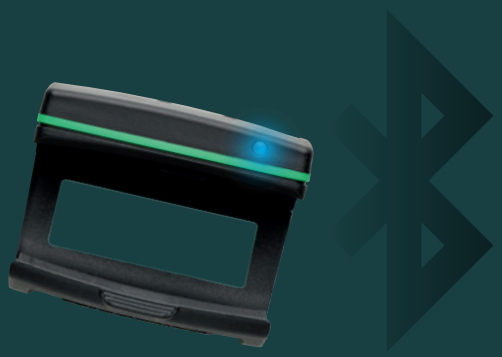
With ISM (Industrial, Scientific and Medical bandwidth) technology, the MANSOKOP® 766 DAPTIQ® offers a technology for wireless communication that is widely used in industry. You can choose between the frequency bands 868 (Europe) and 915 (USA, etc.) including AES encryption.



2 BLUETOOTH

(Bluetooth Low Energy module)

With the latest generation Bluetooth Low Energy module, the MANSOKOP® 766 DAPTIQ® offers an additional mobile wireless solution. The focus here is on mobile applications and flexibility, among other things.



3 OPEN PROTOCOL / VW-XML

(DAPTIQ® controller, as a software or hardware solution)

The Open Protocol Controller offers flexible integration into existing systems that already control powered tools via Open Protocol. This means that the MANOSKOP® 766 DAPTIQ® can be used "Plug & Play" directly in assembly in most cases.



4 CABLE

(cable module)

If wireless communication is not desirable or possible, the cable module offers a secure connection option for integration. Thanks to the specially developed retaining clip, the connection is always ready for use.



5 STAND-ALONE

The MANOSKOP® 766 DAPTIQ® continues to show its strengths in applications where no connection to the system is possible. The bolted joints can be parameterized and executed independently on the tool itself. The tightening results are stored in the tool and can be downloaded afterwards.



6 INDIVIDUAL SOLUTION

Together we will find the right option for you.

Do none of the solutions described here suit your needs, or do you not know exactly which option will be the most effective for you? Just get in touch with us, an experienced technician will help you with your selection or work with you to develop customised solutions.



1 ISM BANDWIDTH (868/915 MHZ)

The torque wrench is connected to the PC via a base station. Torque wrench and base station transmit in the SubGHz range. In Europe, they use the 868 MHz frequency band for this, in countries such as North America they use the 915 MHz band.

Connection option – STAHLWILLE OpenSource API

Option 1
Native integration into your own system



Customer system **Base station**

Option 2
Control using STAHLWILLE GuideMaster



GuideMaster Free/Pro **Base station**

Option 3
Use of ProTight or similar worker guidance systems



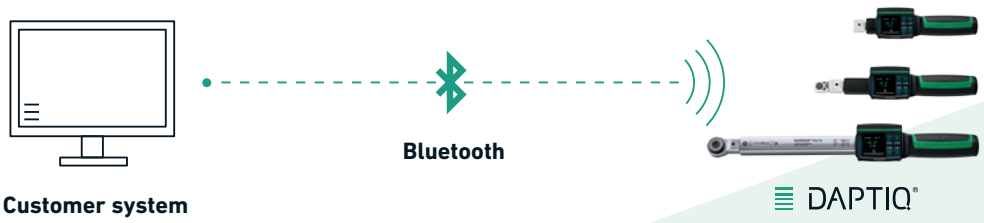
Worker assistance system **Base station**

2 BLUETOOTH

A Bluetooth Low Energy module on the tool provides an alternative option to the radio module and base station. It replaces the radio module as well as the base station and achieves a range of up to 40 meters*. The best solution for companies that don't want to use traditional radio and Wifi. A Bluetooth-capable PC or device is required.

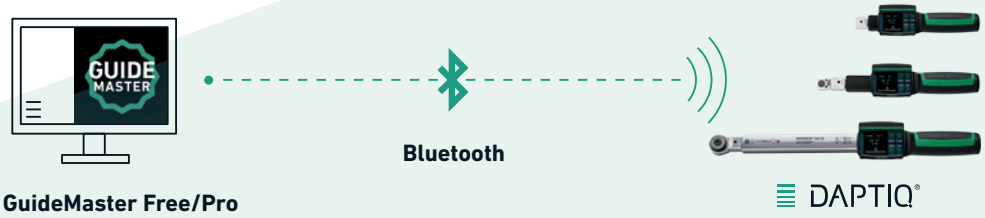
Connection option – STAHLWILLE OpenSource API

Option 1
Native Integration into your own system



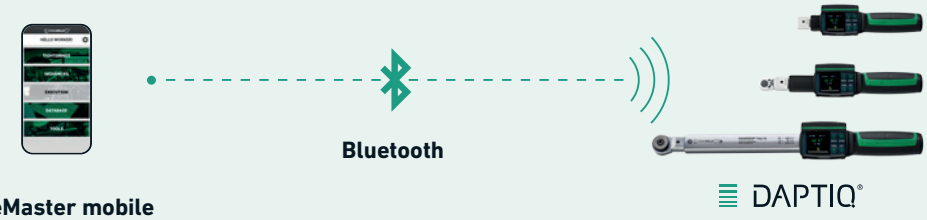
Customer system

Option 2
STAHLWILLE GuideMaster for control



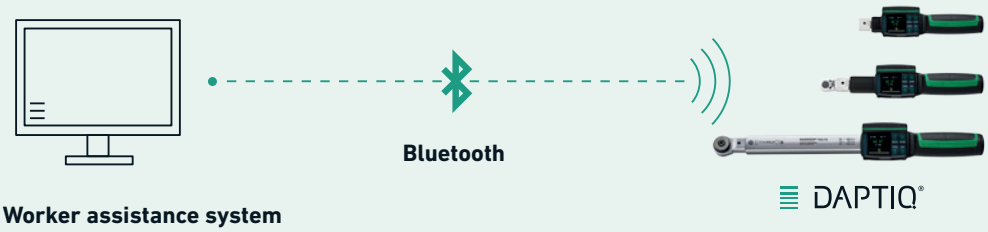
GuideMaster Free/Pro

Option 3
STAHLWILLE GuideMaster for control



GuideMaster mobile

Option 4
Use of ProTight or similar worker guidance systems



Worker assistance system

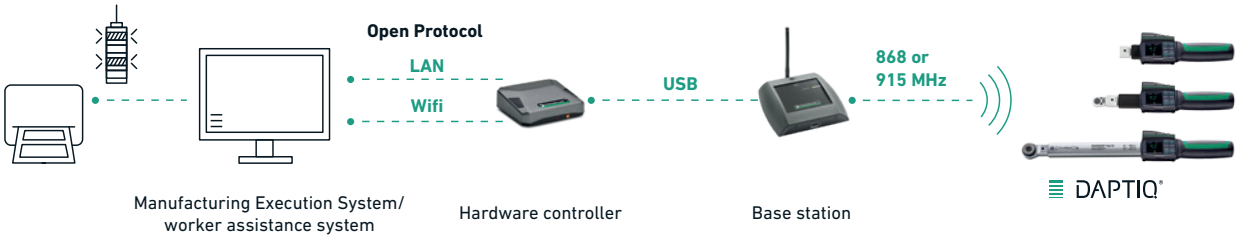
*Line of Sight

3 OPEN PROTOCOL

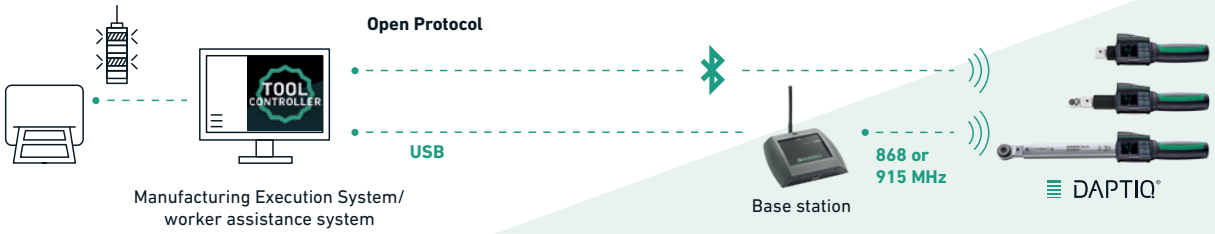
The solution for connecting many tools and base stations. To establish an Open Protocol connection, a ToolController Hardware or a ToolController Software and at least one STAHLWILLE base station including wrench with radio or Bluetooth Low Energy module are required.

Connection options – Open Protocol

Option 1
Hardware controller



Option 2
Software controller



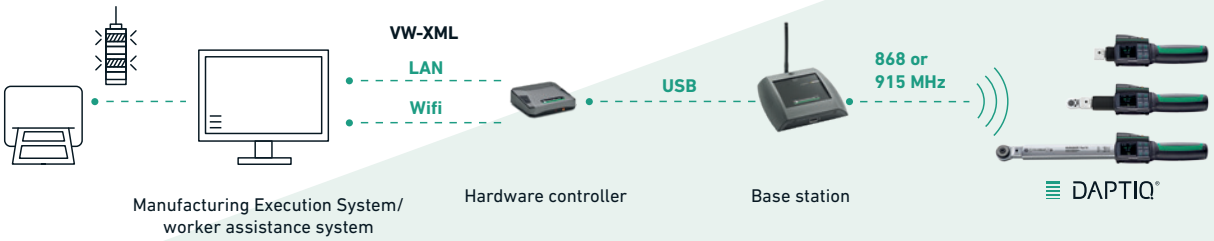
VW-XML

In addition to the common Open Protocol, the tool controller also supports the VW-XML protocol version 2.1. With this interface, the MANOSKOP® 766 DAPTIQ® can be controlled in conjunction with the tool controller via the VW-XML protocol.

Connection options – VW-XML

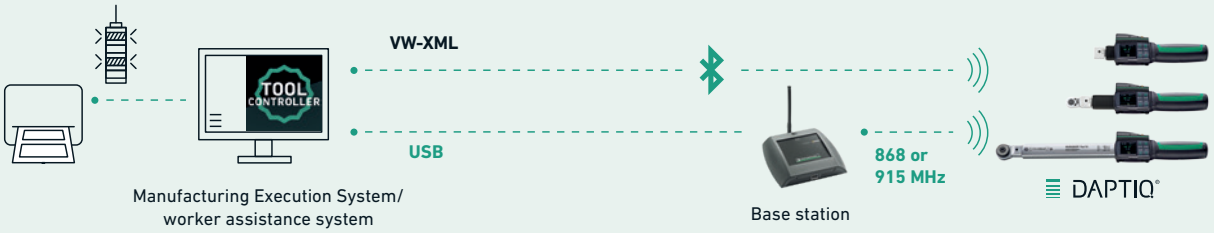
Option 1

Hardware controller



Option 2

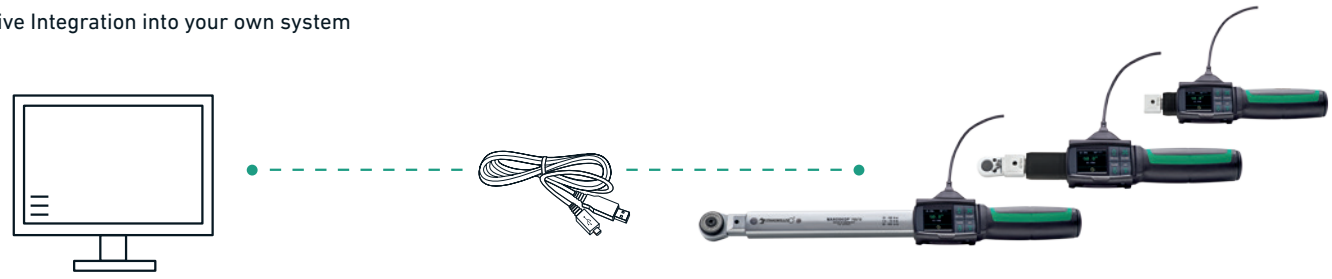
Software controller



4 CABLE

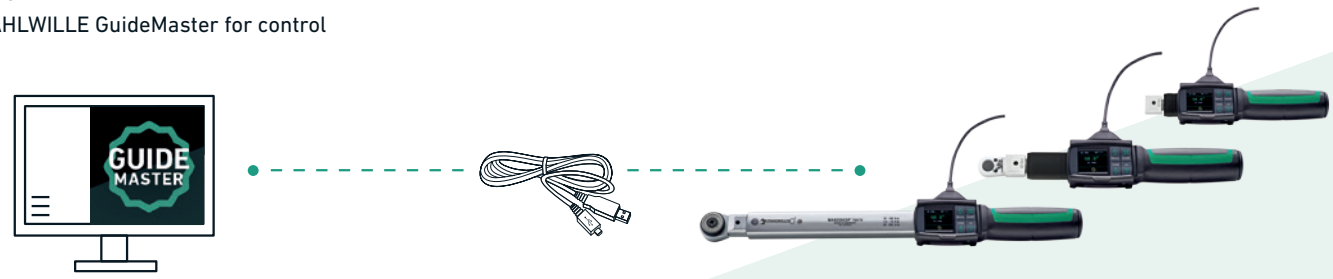
Where radio communication is not permitted or desired, the MANOSKOP® 766 DAPTIQ® can be connected to the various systems via a cable module. It also secures the cable against unintentional disconnection.

Option 1
Native Integration into your own system



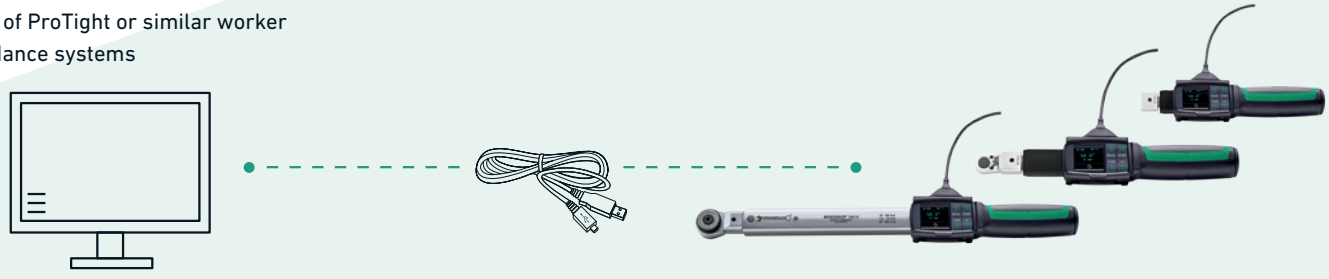
Customer system **Cable**

Option 2
STAHLWILLE GuideMaster for control



GuideMaster Free/Pro **Cable**

Option 3
Use of ProTight or similar worker guidance systems



Worker assistance system **Cable**

5 STAND-ALONE

The MANOSKOP® 766 DAPTIQ® can also be used like a conventional electronic torque wrench without continuous communication with other systems, as it stores up to 250 joint fastening results offline, including time and date stamps.

Parameters can be configured via the direct menu guided by an integrated settings wizard. The results can then be read out via the GuideMaster software and linked to other object data. When the maximum of 250 bolted joints is reached, the oldest stored result is automatically overwritten for each new bolted joint.



6 INDIVIDUAL SOLUTIONS

Do none of the solutions described here suit your needs, or do you not know exactly which option will be the most effective for you? Just get in touch with us, an experienced technician will help you with your selection or work with you to develop customised solutions.







OPERATING MANUAL

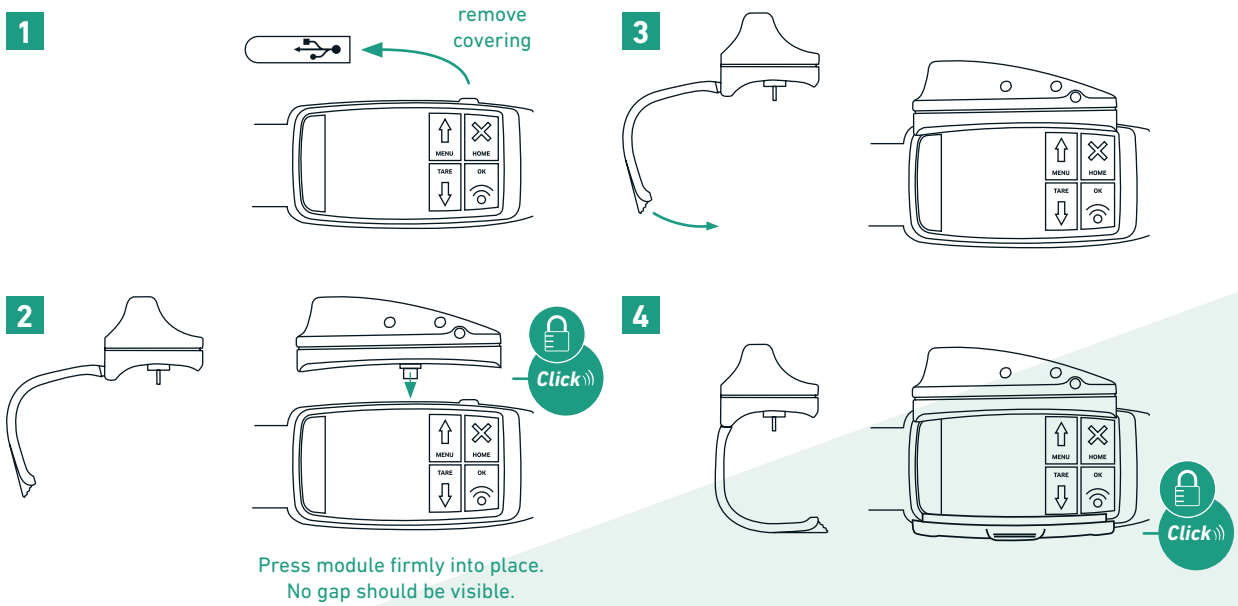

45.0Nm (C)
26.1Nm
MENU
HOME
TARE
OK

1 RADIO MODULE AND BASE STATION

On the following pages, you will find all the information you need for commissioning and parameterization of torque wrenches with radio module.

With this connection method, the torque wrench and base station communicate in the frequency spectrum below 1 GHz, the so-called SubGHz range - in the licence-free ISM band for industrial, scientific and medical purposes (Industrial, Scientific, Medical). In Europe, STAHLWILLE tools use the 868 band, and the 915 band in (North) America. The wireless technology enables high data throughput with low energy consumption. Due to the applicable ETSI and FCC regulations, there is no interference with other radio infrastructures.

Start-up – Radio Module
To connect the wireless module, the USB cover must first be removed. This requires a certain amount of force!



How to get started?

1 Remove the protective cap from the torque wrench and change the interface mode to USB-ISM in the configuration menu.

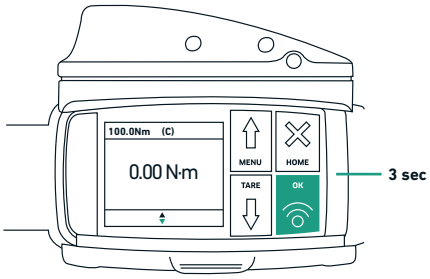
2 Push the module onto the torque wrench until you hear a "click".

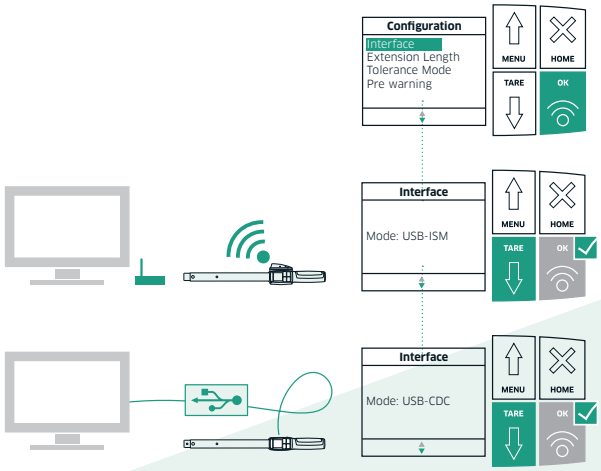
3 Securely attach the retaining clip to the torque wrench.

4 Slide the retaining clip over the edge of the product display to ensure a firm hold. The torque wrench can then be connected to the base station.

Start-up – Interface settings
During commissioning, the interface mode must be set!

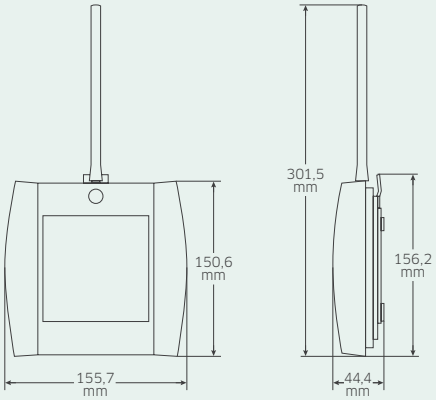
a. wireless: USB-ISM (Industrial Scientific Medical)
b. wired: USB-CDC (virtual COM port)
c: wired USB-HID: Service and updates
d: wired USB-CAL: Fully automatic calibration via 7794-2 & 7794-3

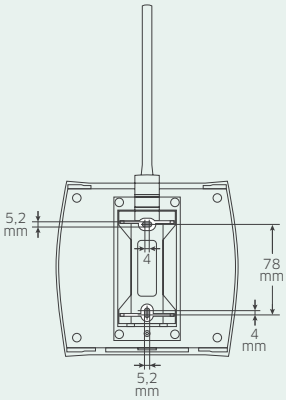




Radio Transmission

Frequencies:
Torque wrench and base station transmit in the so-called SubGHz range. The 868 band is used in Europe and the 915 band in (North) America. The radio technology enables high throughput with low energy consumption. Interference with other radio infrastructures is verifiably excluded in accordance with ETSI and FCC regulations!



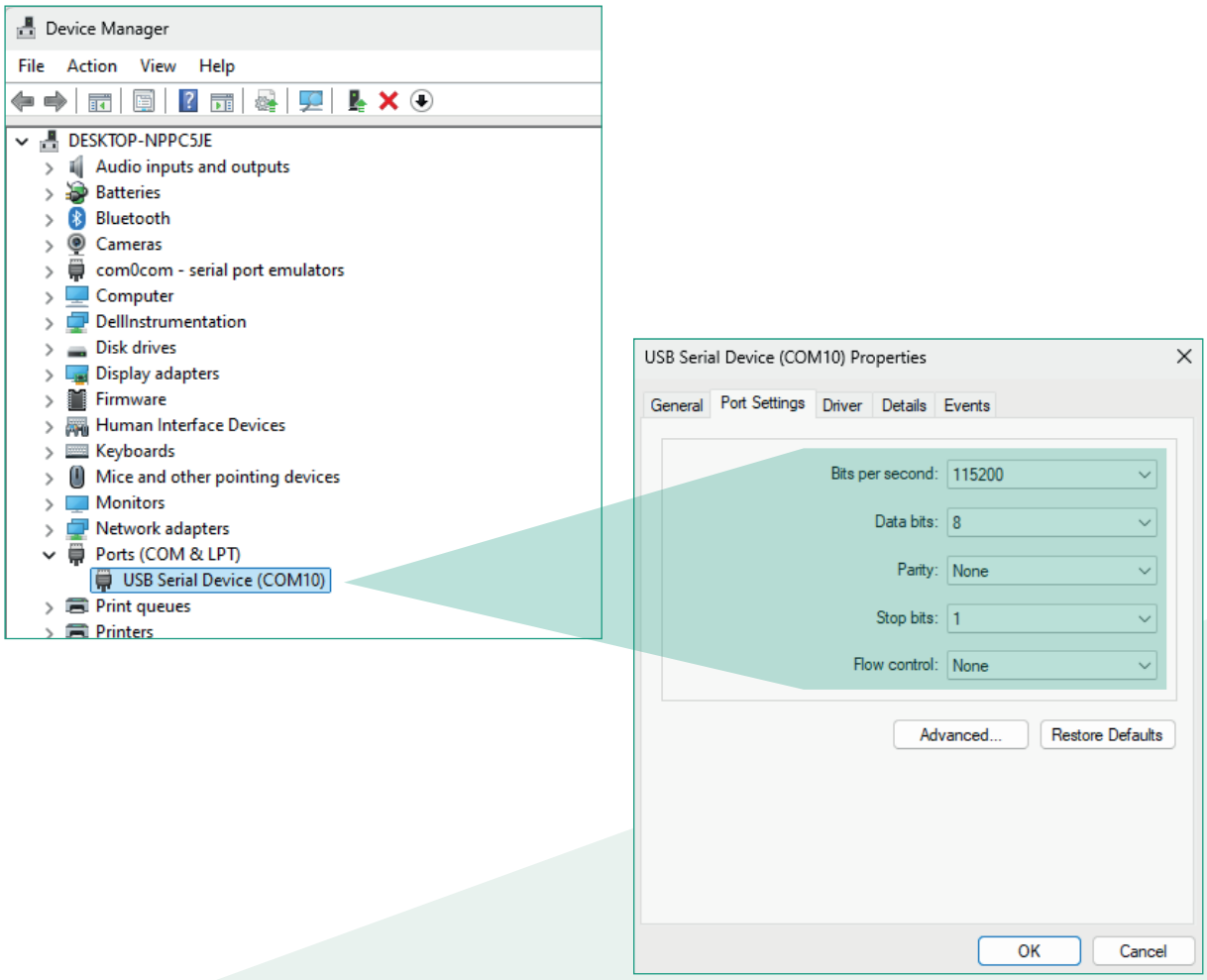




Configure Base Station in Microsoft Windows 11 via Device Manager

Connect Base Station:
1. Press + X
2. Select Device Manager
3. Plug Base Station to PC
4. Right click on new serial device
5. Change Port Settings

NOTE:
For Microsoft WIN7 the MSP430 CDC driver must be installed manually.

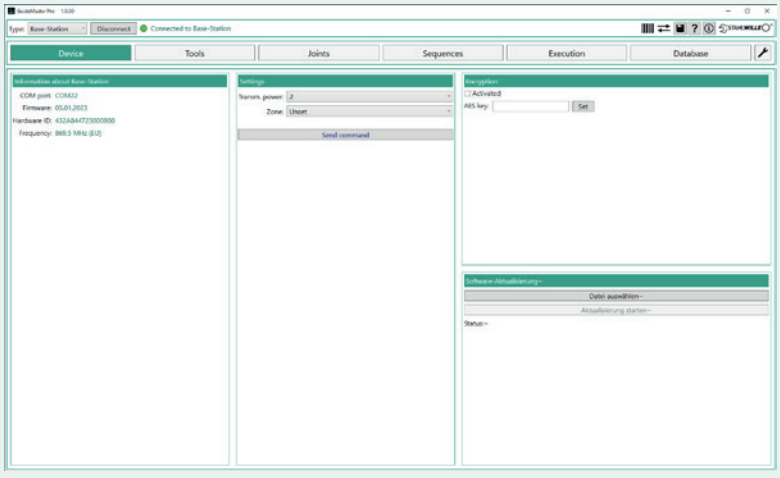


Radio Station / Zoning

Each Base Station will only communicate with wrenches programmed to be in the same zone.

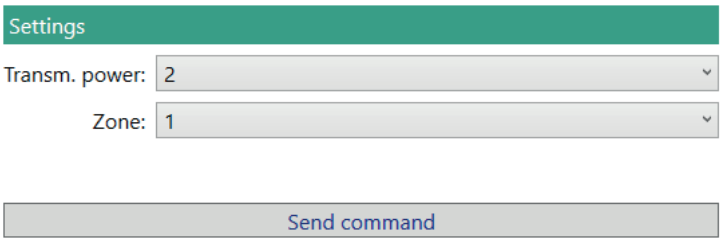
NOTE: RF patterns will not be circular and will depend upon objects and barriers around them. The circles here are only representative of overlapping zones.

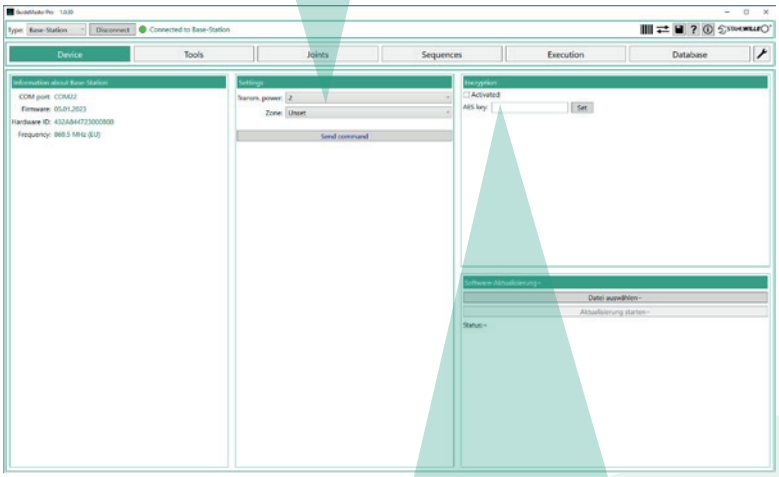


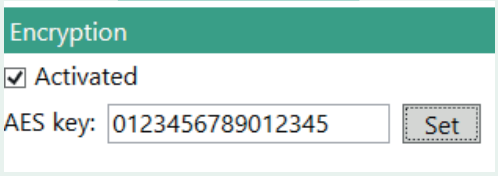


The zoning of the radio module or base station can be programmed easily via GuideMaster. All you have to do is connect the device to the computer and connect it to GuideMaster. The radio module or base station then automatically adopts the settings.

A 16-digit AES key must be assigned for AES encryption. This is then imported into the respective device by pressing the “Set” button.







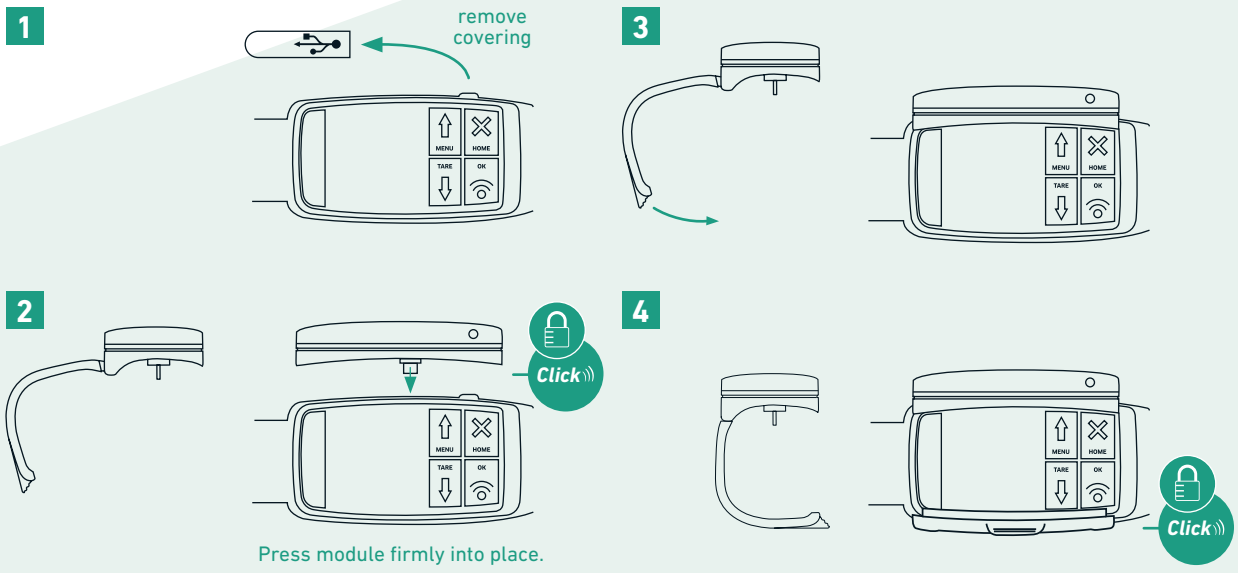
2 BLUETOOTH LOW ENERGY MODULE

Connect your MANOSKOP® 766 DAPTIQ® to the leading system via Bluetooth in just a few simple steps.

The STAHLWILLE Bluetooth Low Energy module is simply plugged into the USB interface of the torque wrench and securely fixed to the tool by snapping the bracket into place.
In order for the MANOSKOP® 766 DAPTIQ® to know that it should send via the Bluetooth Low Energy module instead of via a USB cable, you must then switch to "USB-ISM" in the configuration menu instead of the "USB-CDC" interface (factory setting) – the tool is ready to send and can be paired with a Bluetooth-capable PC or a mobile device.

Connection options – Open Protocol

Start-up – Bluetooth Low Energy module
To connect the Bluetooth Low Energy module, the USB cover must first be removed. This requires a certain amount of force!



How to get started?

1 Remove the protective cap from the torque wrench and change the interface mode to USB-ISM in the configuration menu.

2 Push the module onto the torque wrench until you hear a "click".

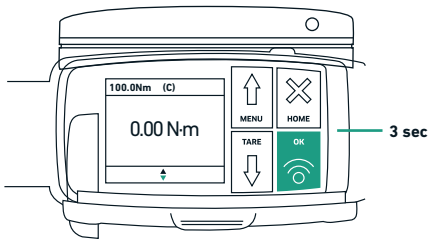
3 Securely attach the retaining clip to the torque wrench.

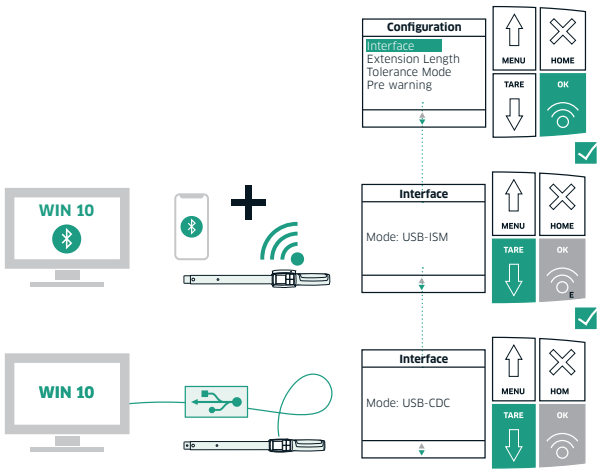
4 Slide the retaining clip over the edge of the product display to ensure a firm hold. The torque wrench can then be connected.

Start-up – Interface settings

During commissioning, the interface mode must be set!

a. wireless: USB-ISM (Industrial Scientific Medical)
b. wired: USB-CDC (virtual COM-port)





Set up COM-Port assignment under BluetoothMaster (Windows)

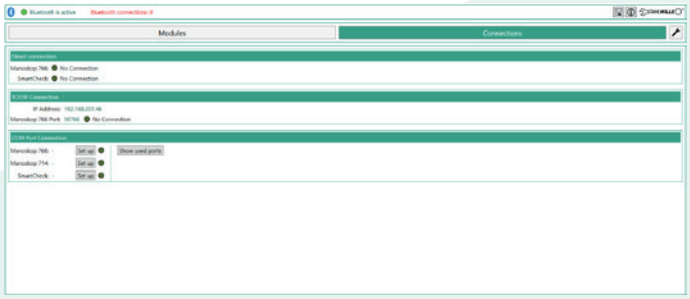
1

For COM port assignment, BluetoothMaster must run as administrator.



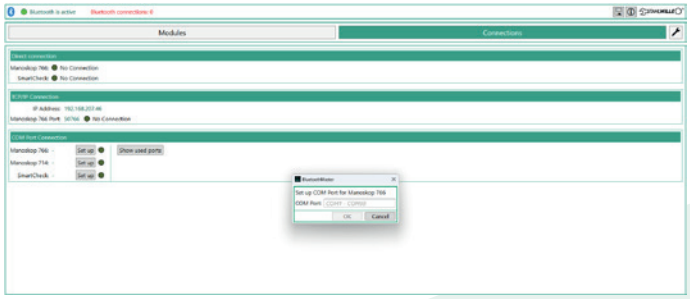
2

In the “Connections” menu item, a COM port can be set up for the respective device.



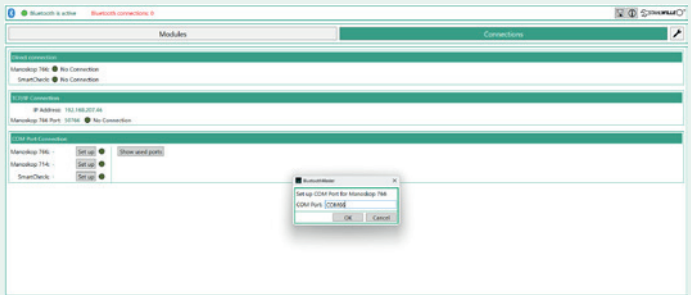
3

To set up a COM port, a text field must be entered. The desired COM port is stored here.



4

In the example shown, „COM66“ is assigned for the MANOSKOP® 766 DAPTIQ®.



3 TOOLCONTROLLER HARDWARE/SOFTWARE

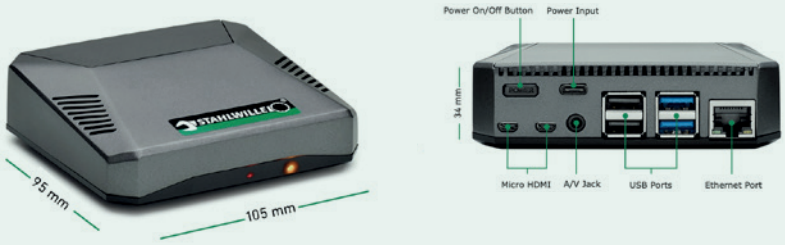
Connection via Open Protocol has largely become the standard in networked production environments. Read how they are established here using a hardware or software controller.

In order to network your MANOSKOP® 766 DAPTIQ® with your systems via Open Protocol or the Internet protocol TCP/IP, you need a base station in addition to the torque wrench, as well as a software or hardware controller that regulates the data flow (see schematic diagram). An overview of the available control commands is given on the following pages.

Open Protocol connection using ToolController Hardware

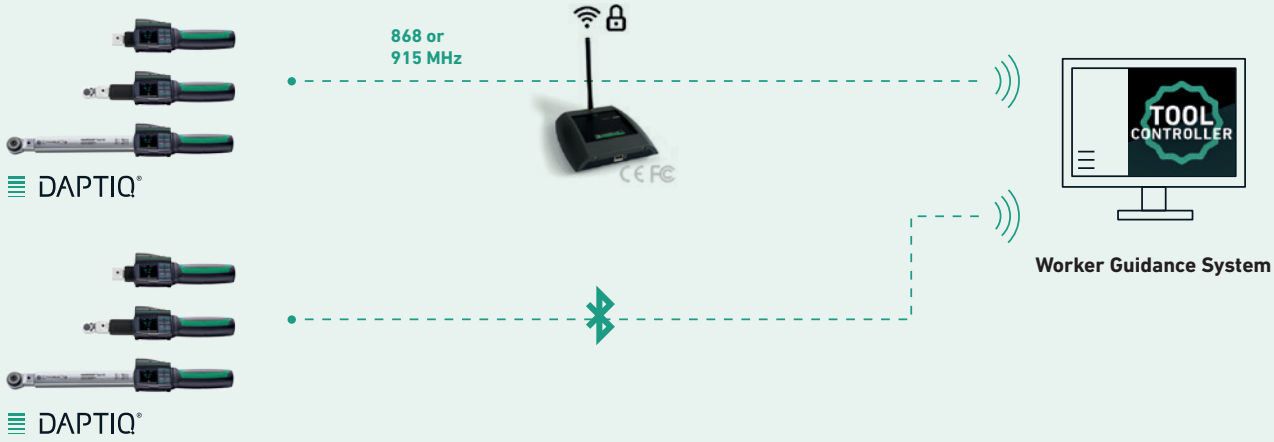


ToolController Hardware



Open Protocol connection using ToolController Software

The ToolController Software offers a software-based alternative to the ToolController Hardware.
No additional device is required here, but only a Windows PC, if available, which is then used for control.



List of MIDs and implemented revisions

MID	Name	Sent by	Supported with revision
1	Communication start	I	6/7
2	Communication start acknowledge	C	6/7
3	Communication stop	C	x
4	Command error	C	x
5	Command accepted	C	x
6	Application data message request	I	x
10	Parameter set ID upload request	I	x
11	Parameter set ID upload reqly	C	x
12	Parameter set data upload request	I	2/2
13	Parameter set data upload reqly	C	2/2
14	Parameter set selected subscribe	I	2/2
15	Parameter set selected	C	x
16	Parameter set selected achkowledge	I	x
17	Parameter set selected unsubscribe	I	x
18	Select Parameter set	I	x
40	Tool data upload request	I	3/7
41	Tool data upload reqly	C	3/7
42	Disable tool	I	x
43	Enable tool	I	x
50	Vehicle ID number download request	I	x
51	Vehicle ID number subscribe	I	x
54	Vehicle ID number unsubscribe	I	x
60	Last tightening result data subscribe	I	7/8
61	Last tightening result data	C	7/8
62	Last tightening result data acknowledge	I	x
63	Last tightening result data unsubscribe	I	x
70	Alarm subscribe	I	2/2
71	Alarm	C	2/2
72	Alarm acknowledge	I	x
73	Alarm unsubscribe	I	x
74	Alarm acknowledge on controller	C	x
75	Alarm acknowledge on controller acknowledge	I	x
76	Alarm status	C	x
77	Alarm status acknowledge	I	x
78	Acknowledge alarm remotely on controller	I	x
80	Read time upload request	I	x
81	Read time upload reqly	C	x
82	Set time	I	x**
110	Display user text on compact	I	x
111	Display user text on graph	I	x
113	Flash green light on tool	I	x*
150	Identifier download request	I	x
270	Controller reboot request	I	x**
701	Tool list upload reply	C	x
9999	Keep alive message	I	x

* flashes wrench display cyclically and waits for button pressed with new wrench firmware (1.2.7), just flashes once with old firmware
** functional with controller hardware only, returns ERROR with Windows (evaluation only)

4 CABLE MODULE

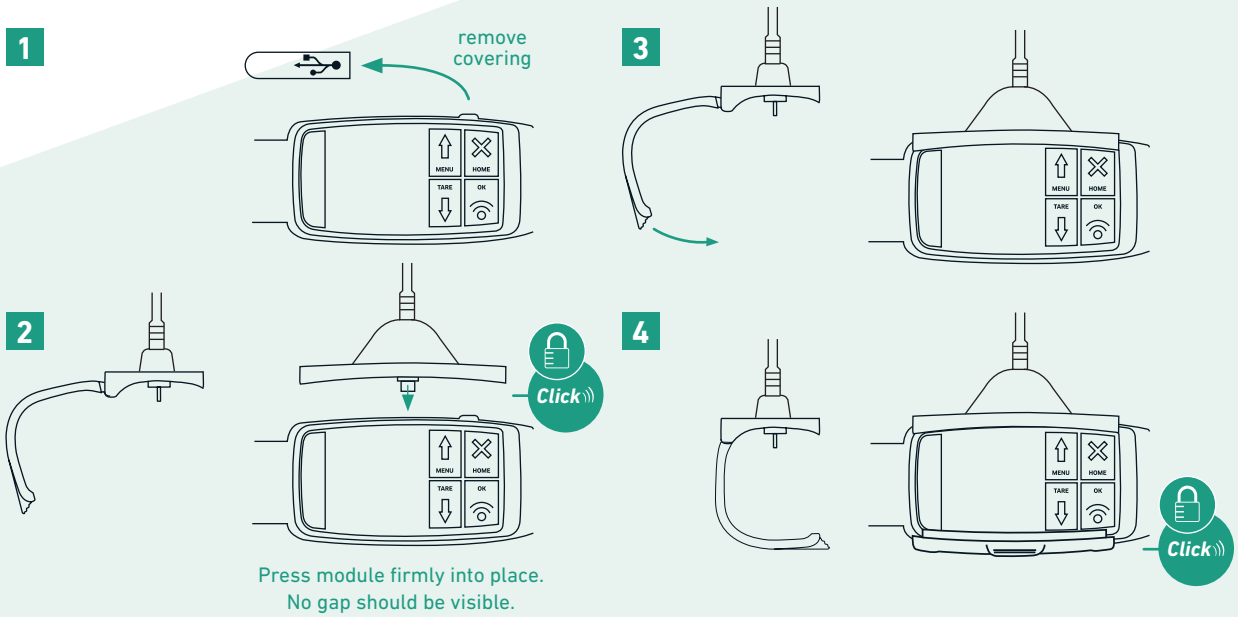
If you only want to exchange data between a PC and a MANOSKOP® 766 DAPTIQ®, using the cable module is an easy and quick option.

The same applies if wireless communication is not an option. The STAHLWILLE cable module has a special retaining clip for optimal, secure connection.

The connection via cable is “plug & play”: No changes are necessary to your MANOSKOP® 766 DAPTIQ® when delivered; the tool is automatically detected by the PC. If the wrench has previously been used with a wireless radio or Bluetooth Low Energy module, remember to change the interface mode to USB-CDC.

Connection options – Cable Module

Start-up – Cable Module
To connect the Cable module, the USB cover must first be removed. This requires a certain amount of force!



How to get started?

1 Remove the protective cap from the torque wrench and change the interface mode to USB-ISM in the configuration menu.

2 Push the module onto the torque wrench until you hear a "click".

3 Securely attach the retaining clip to the torque wrench.

4 Slide the retaining clip over the edge of the product display to ensure a firm hold. The torque wrench can then be connected.



PROGRAMMING



1 OPEN SOURCE INTERFACE

When connecting the MANOSKOP® 766 DAPTIQ® via the integrated open source interface, the tool receives its control commands via Java Script.

The connection is made according to the master-slave principle: The leading system sends its programming commands to the MANOSKOP® 766 DAPTIQ® exclusively with the help of standardised Java Native Threads (JNT). The torque wrench does not act independently in this setup, but only responds to queries and instructions from the master system. This communication is extremely fast because the sampling rate is high: In just one second, the controlling system sends five requests ("samples") to the tool. The result: The tightening process can be seamlessly controlled and documented.

Exemplary tightening:

In the following example, a bolt is to be tightened with a tightening torque of 10 N·m. The JNT command is used to set the target.
The interface requires that the target is specified in mN·m.
A seven-digit text is expected, which is filled with leading zeros on a casewise basis.
The JNT command can be used with additional comma-separated parameters.
If no other parameters are applied, the torque wrench uses the default values set in its memory, e.g. tolerances.
› see operating instructions

JNT	Set a new joint (torque)	Set: JNT,0017000	**JNT,0017000,+000I700+[Tol],-0001700[-Tol]** **,** **0010000[FDT],0030[FDA]** Set joint with setpoint of 17Nm and TOL ±1,7Nm, FixDetection = 10Nm & 3 degree **JNT,0017000,+0003400** Set joint with setpoint of 17Nm, Set upper Tol = 3,4Nm and lower Tol = wrench default, no FixDetection **JNT,0017000,-0003400** Set joint with setpoint of 17Nm, Set lower Tol = 3,4Nm and upper Tol = wrench default, noFixDetection **JNT,0017000** Set joint with setpoint of 17Nm, Set ±TOL = wrench default, no FixDetection Responses: **ParseOK,0017000,+0001700[+Tol],-0001700, 0001000,0030 [optional]** [-Tol] = Set joint with setpoint of 17Nm and TOL ±1,7Nm, FixDetection =10Nm & 3 degree = The joint is now in wrench memory. or **ERROR** = value out of range or syntax error	If no Tolerance is set, the default values for Torque Tolerance will be used. If both tolerance values are set the upper Tol has to be the first. A new JNT command clears the old joint state. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn´t include FixDetection parameters. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) ∈ [0.5„5°]

Exemplary tightening:

The torque wrench does not actively send messages. It must be permanently polled.
The maximum sampling rate is 5 samples per second. The responses of the torque wrench must be evaluated by the software controlling it. The status in the tightening process can be checked continuously. Polling can be stopped as soon as the status has changed from 01 to 03 (OK) or 04 (NOK).

JNT	Get status on preset joint	Get: JNT	**JNT** Response: 00 = Status only = No joint in memory. 0x = Status only = Angle or combined joint in memory or **03,-0000023,0017000,1328164282** = Status, Present Torque, Torque Setpoint, Timestamp Status = 00 = no joint in memory 01 = Joint active 02 = Joint inactive 03 = Joint Passed 04 = Joint Failed	If no Tolerance is set, the default values for Torque Tolerance will be used. If both tolerance values are set the upper Tol has to be the first. A new JNT command clears the old joint state. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn´t include FixDetection parameters. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) ∈ [0.5„5°]

While status not equal 03 or 04 do
  Send **JNT**
  Interpret the answer: 8190910080**1**,+0000042,0010000,1612783778

SNO status actual reading target unix timestamp

2 GUIDEMASTER

GuideMaster is a software that allows you to quickly and conveniently connect your PC to one or more STAHLWILLE DAPTIQ® tools.

It allows you to configure individual screw joints and complex screw sequences as well as automatically document the screwed joints. In doing so, the software recognises the tools and synchronizes the screw joints and sequences defined by you on the PC. GuideMaster is available in different versions.

GuideMaster Free: The free version of the software provides limited functionality and helps the user to become familiar with the software interface.

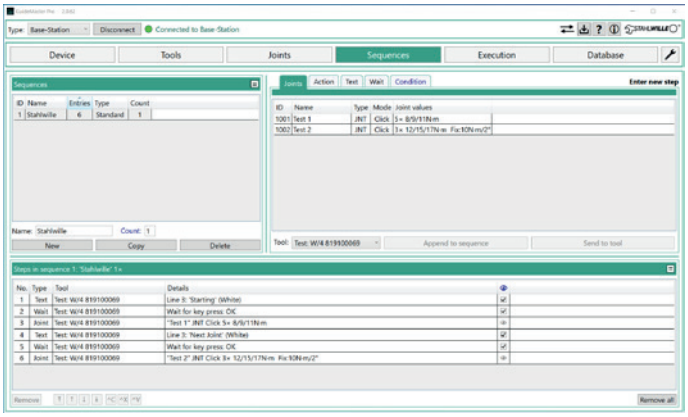
GuideMaster Pro: A separate license is required for this version. GuideMaster Pro contains the full range of features (see table).

GuideMaster Mobile: This mobile version of the software allows the user to quickly and easily operate on-site using a mobile phone.

This powerful software solution automatically detects any number of MANOSKOP® 766 DAPTIQ® torque wrenches after initial login and manages them simultaneously – whether via USB or wirelessly. You can easily create tightening cases and complex tightening sequences and transfer them directly to the torque wrench. GuideMaster Pro automatically documents the bolted joints carried out and allows easy export of the bolted joint data for further processing, for example in Excel.

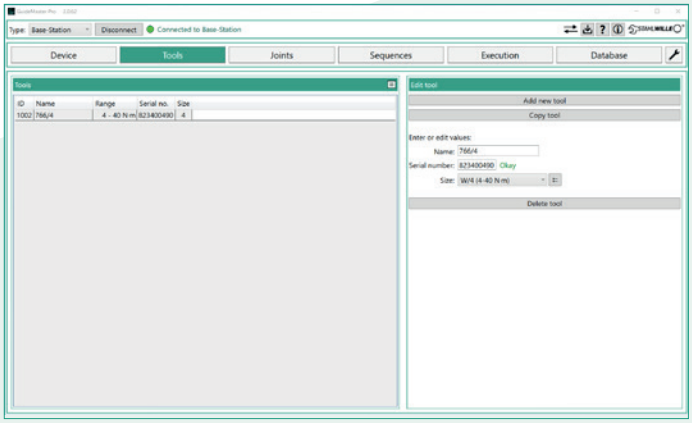
Function	Mobile Version	Free Version	Pro Version
Limitation	unlimited	3 tools, 10 tightenings, 5 sequences, 10 elements per sequence	unlimited
Save protocol	as .csv	–	✓
Display details and save	–	–	✓
Conditional execution after i.O., n.O., fixed, keystroke	–	–	✓
Export/import of tools, tightenings/psets, Jobs, database	–	–	✓
List with IP addresses of multiple controllers	–	–	✓
Linking individual parameters with tightenings	–	–	✓
Central data storage	–	–	✓
Setting up the controller during operation	–	–	✓
Job management	–	–	✓
Send tightening data to input masks (keypad emulation)	–	–	✓
Password protection (user management)	–	–	✓
Menu areas Setup, Operator guidance, Execution can be switched on/off individually	–	–	✓
Freely selectable synonyms for „i.O.“ and „n.i.O.“	–	–	✓
Tightening name can displayed on wrench	–	–	✓

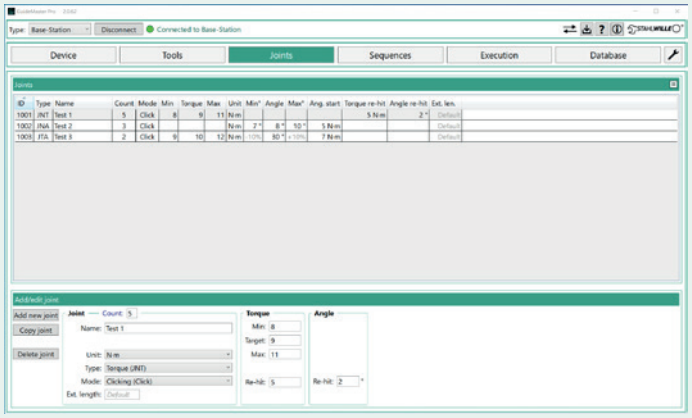
2.1 GuideMaster Pro



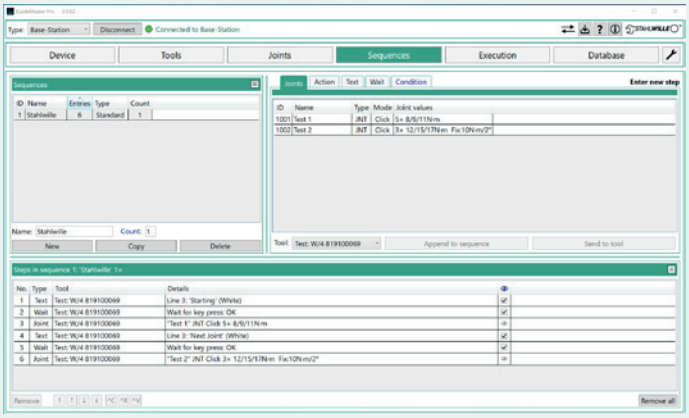
Tools
Add new tools to the internal database.
· enter a name for tool
· enter size
· enter serial-number

Tightenings
Create a new tightening:
· enter a name
· choose the method (Torque, Angle, Torque&Angle, Angle&Torque)
· select the mode (Click, Track, Peak Hold)
· option to select a different extension length
· enter the values for the selected method

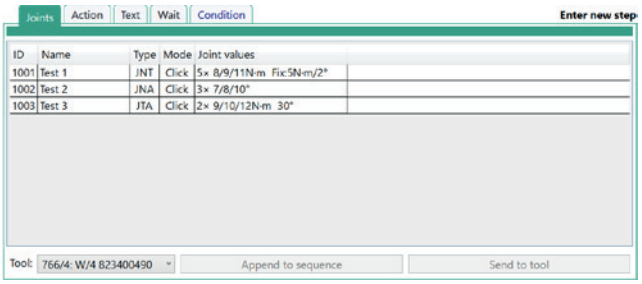




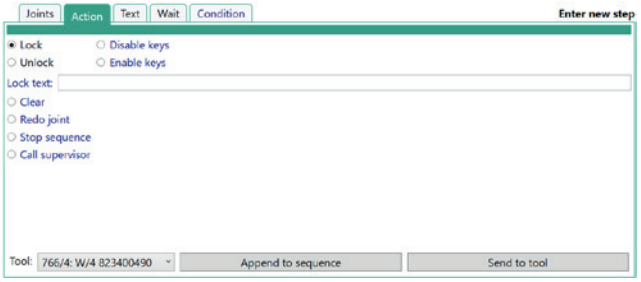
Sequences
Create complex sequences with tightenings, actions, text messages, wait conditions and if/else conditions



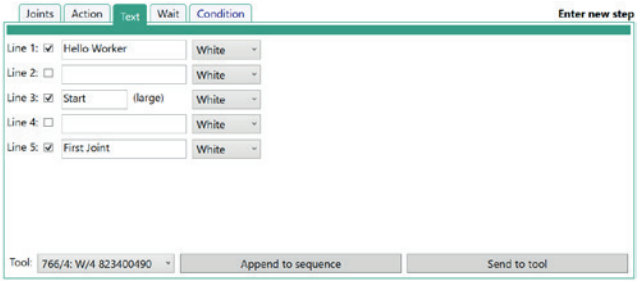
Easily build your sequences with your configured bolted joints.



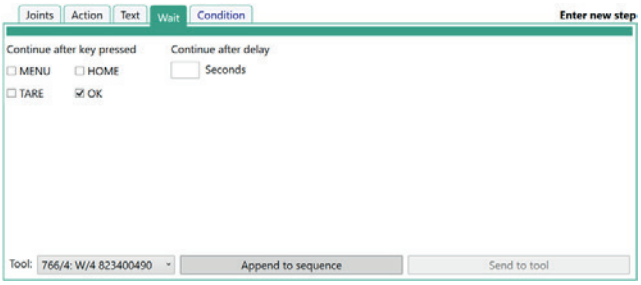
For added process reliability, limit the operator's access to selected features on the MANOSKOP® 766 DAPTIQ®.



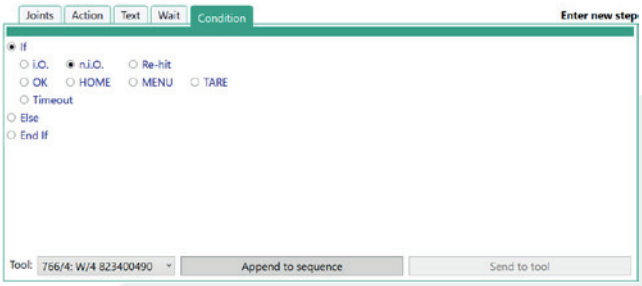
View helpful work instructions directly on the MANOSKOP® 766 DAPTIQ® and prevent errors.



Have the worker confirm the work steps performed.

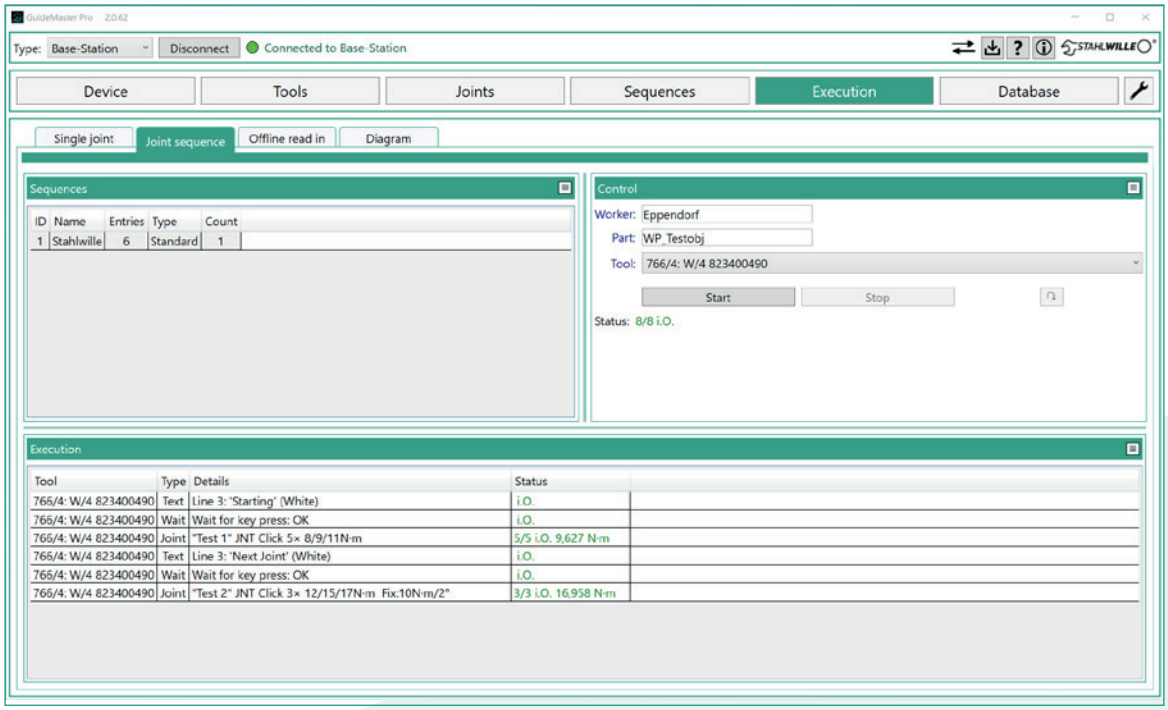


Define conditions for handling in certain situations.



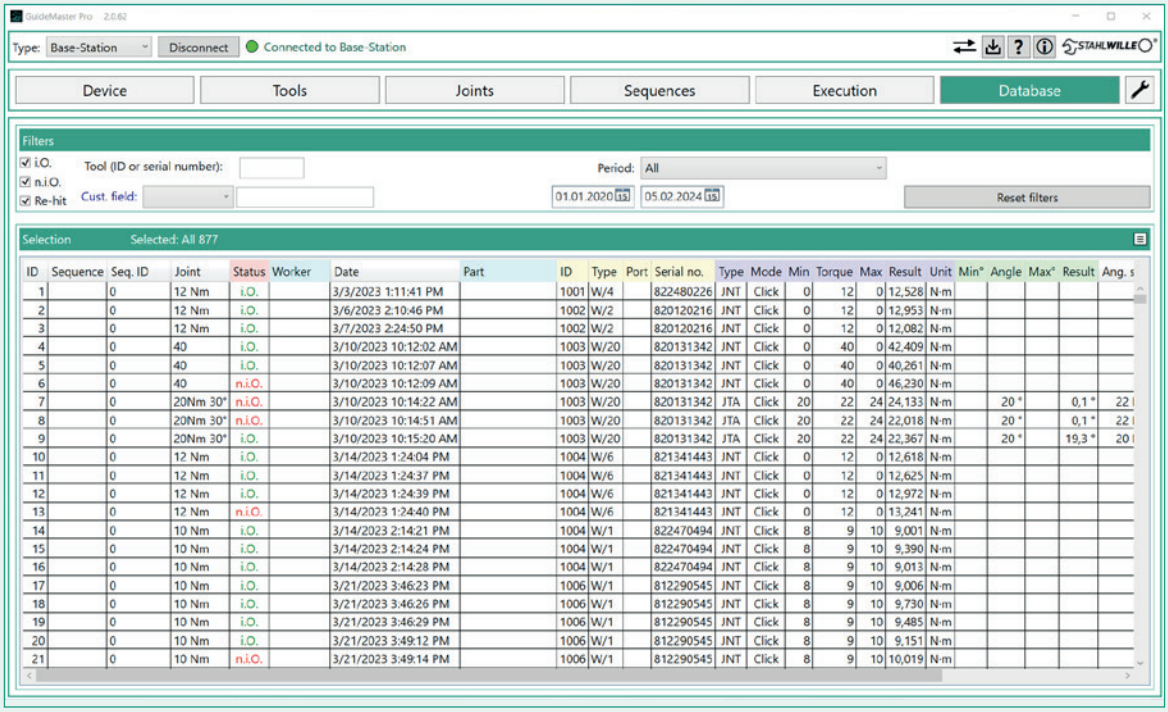
Execution

Execute the programmed tightenings and sequences with the possibility of adding further additional data. Automatic certificate generation is also an important feature for documenting the bolting of assemblies.



Database

Database module with filters and possibility of export from datasets. With export function in XML format.

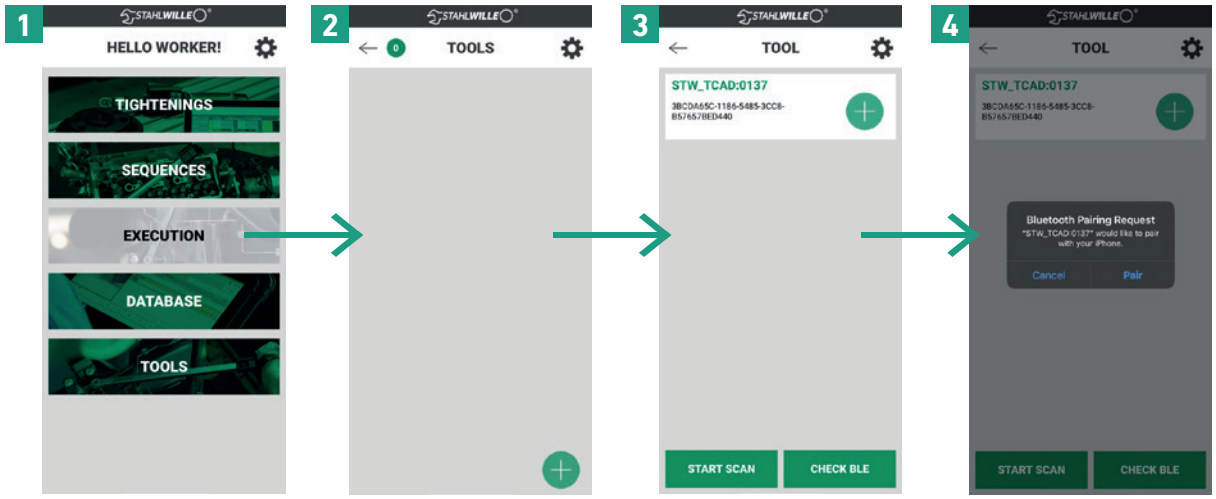


GuideMaster Video

2.2 GuideMaster Mobile

Tools

To create a tool in GuideMaster Mobile, navigate to the "Tools" tab in the start menu. There we tap the plus icon in the lower right corner to add a tool. GuideMaster Mobile then starts a search. By tapping again on the plus symbol next to the desired tool, e.g. the MANOSKOP® 766 DAPTIQ®, we can pair it. This completes the setup.



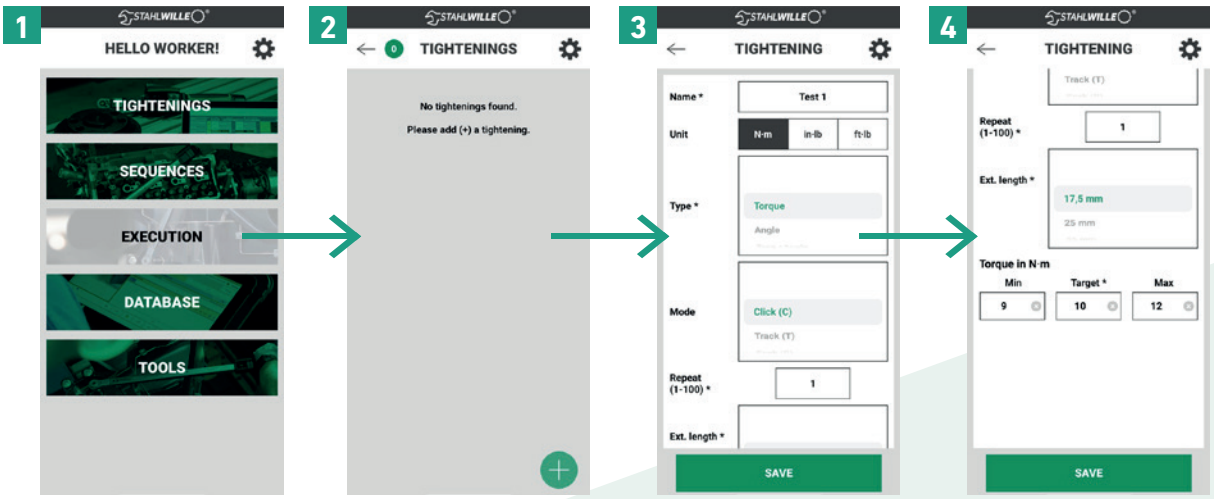
1 To set up a tool, select the "Tools" menu item in the main menu.

2 A new tool is then created via the "Plus" in the bottom right corner.

3 In the next step, the tool to be paired is added by clicking on the "Plus".

4 Finally, the tool is connected by clicking on "pair".

Bolted joint



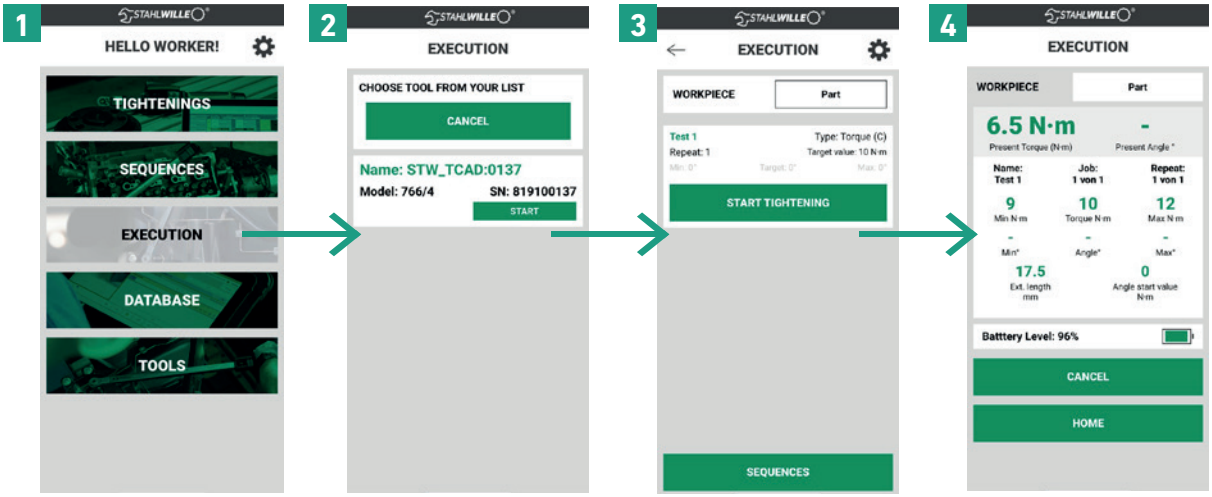
1 To set up a tightening, select the menu item "Joints" in the main menu.

2 A new bolted joint is then created via the "Plus" in the bottom right corner.

3 In the next step, the target values, tolerances and other relevant information will be entered.

4 Finally, the bolted joint is saved and an execution can be started.

Execution



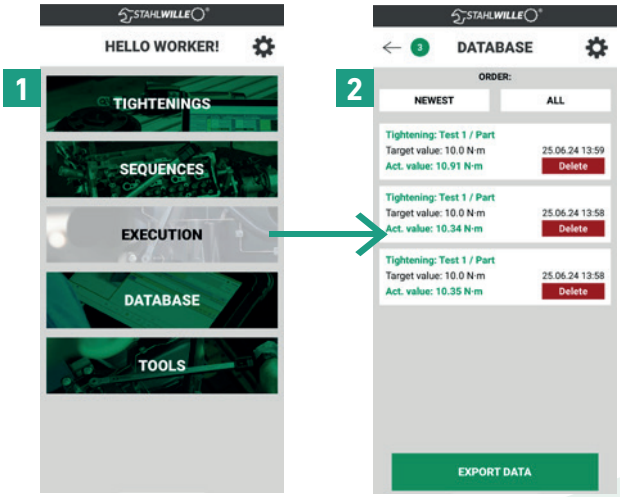
1 To execute a tightening, simply select the menu item "Execution" in the main menu.

2 The required bolt tightening can now be selected from the list.

3 The torque wrenches suitable for the selected tightening task are displayed.

4 After selecting the torque wrench, the tightening starts to run and live data is transmitted until the bolted joint is tightened.

Database



1 The tightening results are stored in the database. This can be viewed via the main menu under the heading "Database".

2 The stored data can be exported in the form of a table and processed further, or viewed and filtered in the GuideMaster Mobile database.

3 INTEGRATION INTO WORKER GUIDANCE SYSTEMS

The MANOSKOP® 766 DAPTIQ® works together with common worker guidance systems and guides users through complex production and assembly tasks.

Worker guidance systems are able to enable and disable tools and give users specific instructions. You can perform assessments and automatically document each step. This helps users to follow the correct sequence and tighten each bolt with the correct torque. The MANOSKOP® 766 DAPTIQ® is compatible with the leading systems and thus helps to keep training and process times low whilst reducing error rates.

The integration of STAHLWILLE DAPTIQ® tools is carried out by the providers of the worker assistance systems themselves. Normally, the selection is made with just a few clicks via a drop-down menu.

We are already integrated into the following worker assistance systems:

ASI DATAMYTE · Atlas Copco · SQS3 · computer aided works · ELAM SOFTWARE · BÖHME & WEIHS · Desoutter PIVOTWARE · MIGHT · Pro Tight PROCESS CONTROL SOFTWARE · IPM PG THE WORKER GUIDANCE · PINpoint · device WISE

ProTight Video







SERIAL COMMANDS

1 SERIAL COMMANDS

Easy integration into existing infrastructure thanks to open command codes.

A large number of serial commands are available for controlling the MANOSKOP® 766 DAPTIQ® by the respective leading system.

On the following pages you will find a list of all the control commands and the associated parameters, programming examples and additional information.

We are constantly developing our products and programmes. Don't miss any updates, download the latest documents here:
service.stahlwille.com

Answer to DEL changed to Deleted (conform to implementation) Answer to CLR changed to Cleared (conform to implementation)	
Added UNT cmd to change the unit (Nm; in lb; ft lb)	Only supported if FW >= V1.1.1 (internal >= V0.1.4)
Added EXL cmd to change the extension length	
Added IDN cmd to change the Ident number Added ICR / ICC cmd for internal use	Only supported if FW >= V1.2.4
Added PWD cmd to change the password (Default 1862)	Only supported if FW >= V1.2.4
Added CLC cmd to read the loads counter	Only supported if FW >= V1.2.4
Added JTA and JAT cmd to set a combined joint	Only supported if FW >= V1.2.5
Added FixDetection parameter to JNT, JNA, JTA and JAT cmd. Added response to combined joint to "!" command	Only supported if FW >= V1.2.6
Added TLV request to read the four top load values Added TST command for internal Test purpose Added RKS request to read key pressed after DKS command	Only supported if FW >= V1.2.7
Added timestamp to example for the GJD response Changed OK to ParseOK in example of SET cmd Added GDS cmd to read state of the direct mode (trigger for new offline joint data) Added D3K cmd to disable keys without the OK key to finish a joint in Peak/Track Mode GJD without a number returns the latest data record Added STA and SAT cmd to load combined joint to direct settings Added links at the end of the document Changed possible response of ERR cmd	Commands only supported if FW >= V1.2.8
Change joint address order for the GJD command Delete errors separately (OVERLOAD, ELECTRONIC ERROR 3, ELECTRONIC ERROR 4)	Only supported if FW >= V1.2.9
Added new status 05=Fixing detection to response of JNT, JNA, JTA and JAT	Only supported if FW >= V1.2.10
Added SJN cmd to set a name to a joint. This name is displayed in the headline of the parameter list / headline during tightening.	Only supported if FW >= V1.2.11
Added TMP cmd to set the torque-multiplier and angular transmission Added SDJ cmd to set a factory default online joint	Only supported if FW >= V1.3.0
Added OVER-VOLTAGE ERROR in case of battery voltage > 7.2V Added SERVICE-HINT if loads > 75000 Added + cmd for live data (included ms timestamp) Added STS request for lock & keyboard state	Only supported if FW >= V1.3.1
Added GSH request for permanent service hint Added LOC request for load counter (CLC = clic counter) Added BEP cmd to activate the buzzer	Only supported if FW >= V1.3.2 Bugfix in V1.3.4
Added hints for BEP cmd	Only supported if FW >= V1.3.4

Command	Description	Parameters	Examples	Additional Info
"MMV or '?'"	"Return current torque **and** angle value"	„CR at end or ? CR at end If ‚?' alone, no CR is needed???“	**MMV?**<CR> or **MMV**<CR> or ?<CR> Response: **+0007050 mNm,+0154 tenth degrees,1524823218 =** ±Present Torque Unit, ±Present angle Unit, Timestamp	Even the angle, angle in 1/10°
“&”	Return current torque **and** angle value (short format)		**&** <CR> Response: **+0007050,+0154,1524823218** = ±Present Torque, ±Present angle,Timestamp“	Even the angle, angle in 1/10°
“!”	Return current torque **or** angle value (short format)		**&** <CR> Response: **0007050,1524823218** = Present Torque,Timestamp or **0154,1524823218** Present Angle,Timestamp or **0007050, 0154,1524823218** = Present Torque, Present Angle,Timestamp depends on method	Response to combined joint (JTA;JAT) only if FW>=1.2.6
“+”	Return current torque , angle value and 1ms timestamp		**+** <CR> Response: **+0007050,+0045,0789** = ±Present Torque, ±Present angle, 1ms Timestamp	1ms Timestamp: 9999 -> 0000
SET	Get / Set Setpoint	Set: SET,XXXXXXX, [opt. ±TOL] XXXXXXX = torque setpoint Get: CR at end	**SET,0017000,+0001700[+Tol], 0001700[-Tol]** = Set direct joint with setpoint of 17 Nm and TOL ±1,7Nm **SET,0017000** Set direct joint with setpoint of 17 Nm and ±TOL = wrench default Response: **ParseOK,0017000,+0001700,-0001700** Set joint with direct setpoint of 17 Nm and TOL ±1,7Nm Get: Same response as SET without “ParseOK,”	Set the wrench direct joint, only active if no online JNT is present Subset like JNT
SEA	Get / Set Angle Setpoint	Set: SEA,XXXXXXX,YYYY, [opt. ±TOL] XXXXXXX = snugpoint YYYY = angle in /10 degree Get: CR at end or ? CR at end	**SEA,0006000,0350,+0035 [+Tol],-0035 [-Tol]** Set single joint with angle start torque of 6 Nm and 35 degrees and TOL = ± 3,5degrees Responses: **ParseOK,0006000,0350,+0035,-0035** The joint with angle start torque of 6Nm, 35degrees and TOL = ± 3,5degrees is stored now. Get: Same response as SET without “ParseOK,”	Same function as SET only for the angle mode Subset like JNA
RDP	Clear display and peak	CR at end	**RDP**<CR> Response: **OK**	Same function like 714, TBD
STA	Get / Set a new joint (torque – angle combined)	Set: STA,XXXXXXX, [opt. ±TOL], YYYYYYY,ZZZZ, [opt. ±TOL] XXXXXXX = Torque setpoint YYYYYYY = Angel start torque ZZZZ = Angle Setpoint Get: STA CR at end	**STA,0017000,+0001700[+Tol],-0001700[-Tol], 0006000,0450,+0050[+Tol],-0050[-Tol]** Set joint with setpoint of 17 Nm and TOL ±1,7Nm, angle start torque of 6 Nm and 45 degrees and TOL = ± 5,0degrees Response: **ParseOK,0017000,+0001700,-0001700, 0006000,0450,+0500,-0500** or **Error** if value out of range or syntax error Response: Same as Set without ParseOK or **error** if direct setting not equal torque – angle joint	Set a combined torque / angle direct joint. Subset like JTA without fixing detection
SAT	Get / Set a new joint (angle - torque combined)	Set: SAT, XXXXXXX,YYYY, [opt. ±TOL] ZZZZZZZZ, [opt. ±TOL], XXXXXXX = Angel start torque YYYY = Angle Setpoint ZZZZZZZ = Torque setpoint Get: SAT CR at end	**SAT,0006000,0450,+0050[+Tol],-0050[-Tol], 0017000,+0001700[+Tol],-0001700[-Tol]** Set joint with angle start torque of 6 Nm and 45 degrees and TOL = ± 5,0degrees and torque setpoint of 17 Nm and TOL ±1,7Nm Response: **ParseOK,0017000,+0001700,-0001700, 0006000,0450,+0500,-0500** or **Error** if value out of range or syntax error Response: Same as Set without ParseOK or **error** if direct setting not equal angle - torque joint	Set a combined angle / torque direct joint. Subset like JAT without fixing detection
BAT	Get Battery Level	CR at end	**BAT**<CR> Response: **98%** = Battery Level in percent full.	Will be displayed in percent
VER	Get Version	Get: CR at end	**VER**<CR> Response: **01.02.05 REV:68972A41** Software Version Number & Revision Number	STW Version Structure 03.01.01 REF:12345678
RTC	Get / Set Real Time Clock (Time and Date)	Set: RTC,XXXXXXXXXX XXXXXXXXXX = Unix-timestamp Get: RTC CR at end	Set: **RTC,1524823218** Set time to 27.04.2018;12:00:18 Response: **OK** Get: **RTC?**<CR> or **RTC**<CR> Response: **1524823218** (27.04.2018;12:00:18)	UNIX-Timestamp is used

Command	Description	Parameters	Examples	Additional Info
JNT	Set a new joint (torque)	Set: JNT,0017000	**JNT,0017000,+0001700[+Tol], 0001700[–Tol] , 0010000[FDT],0030[FDA]** Set joint with setpoint of 17 Nm and TOL ±1,7Nm, FixDetection = 10Nm & 3 degree **JNT,0017000,+0003400** Set joint with setpoint of 17 Nm, Set upper Tol = 3,4Nm and lower Tol = wrench default, no FixDetection **JNT,0017000, 0003400** Set joint with setpoint of 17 Nm, Set lower Tol = 3,4Nm and upper Tol = wrench default, no FixDetection **JNT,0017000** Set joint with setpoint of 17 Nm, Set ±TOL = wrench default, no FixDetection Responses: **ParseOK,0017000,+0001700[+Tol], 0001700, 0001000,0030[optional]** [Tol] = Set joint with setpoint of 17 Nm and TOL ±1,7Nm, FixDetection =10Nm & 3 degree = The joint is now in wrench memory. or **ERROR** = value out of range or syntax error	If no Tolerance is set, the default values for Torque Tolerance will be used. If both tolerance values are set the upper Tol has to be the first. A new JNT command clears the old joint state. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn't include FixDetection parameters. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) [0.5..5°]
JNT	Get status on preset joint	Get: JNT	**JNT** Response: 00 = Status only = No joint in memory. 0x = Status only = Angle or combined joint in memory or **03,-0000023,0017000,1328164282** = Status, Present Torque, Torque Setpoint, Timestamp Status = 00= no joint in memory 01= Joint active 02= Joint inactive 03= Joint Passed 04= Joint Failed 05=Fixing detection	
JNA	Set a new joint (angle)	Set: JNA,XXXXXXX,YYYY, [opt. ±TOL] XXXXXXX = Angel start torque YYYY = Angle Setpoint	**JNA,0006000,0350,+0035 [+Tol],-0035 [-Tol], 0010000[FDT],0030[FDA]** Set single joint with angel start torque of 6 Nm and 35 degrees and TOL = ± 3,5degrees, FixDetection = 10Nm & 3 degree **JNA,0006000,0350,+0035** Set single joint with angel start torque of 6 Nm and 35 degrees; Set upper TOL = 3,5degrees, set lower Tol = wrench default, no FixDetection **JNA,0006000,0350,-0035** Set single joint with angel start torque of 6 Nm and 35 degrees, Set lower TOL = 3,5degrees; and upper Tol = wrench default, no FixDetection **JNA,0006000,0350** Set single joint with angel start torque of 6 Nm and 35 degrees, Set ±TOL = wrench default, no FixDetection Responses: **ParseOK,0006000,0350,+0035,-0035, 0001000,0030[optional]** = The joint is now in wrench memory or **ERROR** = value out of range or syntax error	If no Tolerance is set, the default values for Angle Tolerance will be used. A new JNA command clears the old joint state. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn't include FixDetection. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) [1..10°] Response include every time both TOL. If no TOL is defined wrench reports the default ones
JNA	Get status on preset joint	Get: JNA	**JNA** Response: 00 = Status only = No joint in memory. 0x = Status only = Torque or combined joint in memory or **03,-0000023,0006000,0040,0450,1328164282** Status, Present Torque, Angel start torque, Present Angle, Angle Setpoint, Timestamp Status = 00= no joint in memory 01= Joint active 02= Joint inactive 03= Joint Passed 04= Joint Failed 05=Fixing detection	
JTA	Set a new joint (torque – angle combined)	Set: JTA,XXXXXXX, [opt. ±TOL], YYYYYYY,ZZZZ, [opt. ±TOL] XXXXXXX = Torque setpoint YYYYYYY = Angel start torque ZZZZ = Angle Setpoint	**JTA,0017000,+0001700[+Tol],-0001700[-Tol], 0006000,0450,+0050[+Tol],-0050[-Tol], 0010000[FDT],0030[FDA]** Set joint with setpoint of 17 Nm and TOL ±1,7Nm, angle start torque of 6 Nm and 45 degrees and TOL = ± 5,0degrees, FixDetection = 10Nm & 3 degree **JTA,0017000,0006000,0450,** Set joint with setpoint of 17 Nm and ±TOL = wrench default, angle start torque of 6 Nm and 45 degrees and ±TOL = wrench default, no FixDetection Response: **ParseOK,0017000,+0001700,-0001700, 0006000,0450,+0050,-0050, 0001000,0030[optional]** or **Error** if value out of range or syntax error	If no Tolerance is set, the default values for torque and angle tolerance will be used. A new JNA command clears the old joint state. Torque is the primary parameter, angle the control parameter. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn't include FixDetection. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) [0.5..5°]

Command	Description	Parameters	Examples	Additional Info
JTA	Get status on preset joint	Get: JTA	**JTA** Response: 00 = Status only = No joint in memory. 0x = Status only = wrong joint in memory or **03,-000023,0017000, 006000,0040,0450,1328164282** Status, Present Torque, Torque setpoint, Angel start torque, Present Angle, Angle Setpoint, Timestamp Status = 00= no joint in memory 01= Joint active 02= Joint inactive 03= Joint Passed 04= Joint Failed 05=Fixing detection	The response is absolutely the same as the response of **JAT**
JAT	Set a new joint (angle – torque combined)	Set: JAT, XXXXXXX,YYYY, [opt. ±TOL] ZZZZZZZZ, [opt. ±TOL], XXXXXXX = Angel start torque YYYY = Angle Setpoint ZZZZZZZ = Torque setpoint	**JAT,0006000,0450,+0050[+Tol],-0050[-Tol], 0017000,+0001700[+Tol],-0001700[-Tol], 0010000[FDT],0030[FDA]** Set joint with angle start torque of 6 Nm and 45 degrees and TOL = ± 5,0degrees and torque setpoint of 17 Nm and TOL ±1,7Nm, FixDetection = 10Nm & 3 degree **JAT,0006000,0450,0017000** Set joint with angle start torque of 6 Nm and 45 degrees and ±TOL = wrench default, setpoint of 17 Nm and ±TOL = wrench default, no FixDetection Response: **ParseOK,0006000,0450,+0050,-0050, 0017000,+0001700,-0001700, 0001000,0030[optional]** Or **Error** if value out of range or syntax error	If no Tolerance is set, the default values for torque and angle tolerance will be used. A new JNA command clears the old joint state. Angle is the primary parameter, torque the control parameter. **FixDetection is optional.** If no FixDetection is transmitted, the response doesn't include FixDetection. FixDetection torque (FDT) have to be smaller than torque setpoint, FixDetection Angle (FDA) [0.5..5°]
JAT	Get status on preset joint	Get: JAT	**JAT** Response: 00 = Status only = No joint in memory. 0x = Status only = wrong joint in memory or **03,-000023,0017000, 006000,0040,0450,1328164282** Status, Present Torque, Torque setpoint, Angel start torque, Present Angle, Angle Setpoint, Timestamp Status = 00= no joint in memory 01= Joint active 02= Joint inactive 03= Joint Passed 04= Joint Failed 05=Fixing detection	The response is absolutely the same as the response of **JTA**
TLT	Set new default Tolerance	Set: TLT,+%,-% Get: TLT	**TLT,+010,-010** set default tolerance to 10 percent Response: **OK,+010,-010** or **Error** if value out of range (>100%)	Upper and lower tolerance must be less or quall 100%
TLA	Set new default Tolerance	Set: TLA,+%,-% Get: TLA	**TLA,+010,-010** set default tolerance to 10 percent Response: **OK,+010,-010** or **Error** if value out of range (>100%)	Upper and lower tolerance must be less or quall 100%
CLR	Clear/reset joint pass/fail status	CR at end	**CLR**<CR> Response: **Cleared** or **None Saved**	
DEL	Delete Joint command	CR at end	**DEL**<CR> Response: **Deleted** or **None Saved**	After the DEL cmd the direct mode is active, and the direct settings menu is released
FLS	Flash Display (Top Line+ Bottom Line)	See Examples	FLS,1 = Set background red for 1 second. FLS,10 = Set background red for 10 seconds. FLS,0 = Set background to red. FLS,Y,1 = Set background to yellow for 1 second. FLS,G,1 = Set background to green for 1 second. FLS,R,1 = Set background to red for 1 second. FLS,Y,B,1 = Set background to yellow for 1 second and beep. FLS,G,B,15 = Set background to green for 15 seconds and beep. FLS,R,B,1 = Set background to red for 1 second and beep. FLS = Return background to normal color Response: **OK**	

Command	Description	Parameters	Examples	Additional Info
MSG	Send a 20 character message to the top line of the display	MSG by itself – return to normal display mode. MSG, 1 digit Text Line, 2digit,Color and background, Text to write on the selected line: See Examples: Text Lines digit: 1 - First Text Line 2 - Second Text Line 3 – Third Text Line (big) 4 – Fourth Text Line 5 – Fifth Text Line Color and background digit: 0 - Red letters, Black background 1 - Green letters, Black background 2 - Cyan letters, Black background 3 - Yellow letters, Black background 4 - Red letters, Grey background 5 - Green letters, Grey background 6 – Light Blue letters, Black background 7 - Grey letters, Black background 8 - Cyan letters, Grey background 9 - Dark Blue letters, Black background	**MSG** = erase messages on all display lines **MSG,1** = erase message on first line **MSG,2,12345678901234567890** = Set the msg ‚12345678901234567890' on the second display line. 20 characters maximum. Line 1..5 are possible. **MSG,1,0,ABCDEF** = Set the msg ‚ABCDEF' on the top display line with red letters and a black background Response: **OK** or ? in case of parse error Notice: Text messages on Text line 3 are shown in big font. Messages on text line 2-4 has to be removed over the MSG or MSG,2..4 Command to display the actual measurement.	
DEV	Return the wrench ID number	DEV<CR>	**DEV** Return the wrench ID number. Response: **766/:55281912080A66DC996F2E000F00F8FE** = 37 character unique device ID. First 3 numbers describe the hardware type. Range 00000 through 99999 decimal. 00766 = 766 Wrench 04000 = Wireless Module 08000 = Base Station Numbers after the first colon are the MSP430 microprocessor Info Block and Die Record, or, if not an MSP430, the unique microprocessor ID (TBD).	CR at end
SNR	Return the wrench type, the STW serial number and the HW-ID	CR at End	**SNR**<CR> Response: **766/1:812300442:HW-ID=2** 766 [1..10Nm]; SNR = 812300442; HW-ID =02 **766/10:812300442:HW-ID=2** 766 [10..100Nm]; SNR = 812300442; HW-ID =02 **766/100:812300442:HW-ID=2** 766 [100..1000Nm]; SNR = 812300442; HW-ID =02 = wrench type/size:STW SNR:HW-ID	
RST	Reset the electronics.	CR at end	RST <CR> Electronics is reset back to powerup state. Response: **none**	
LCK	Lock wrench	CR at end	**LCK**<CR> Response: **OK**	
UCK	Unlock wrench	CR at end	**UCK** <CR> Response: **OK**	
EKS	Enable all keys	CR at end	**EKS** <CR> Response: **OK**	
DKS	Disable all keys	CR at end	**DKS** <CR> Response: **OK**	
D3K	Disable three keys	CR at end	**D3K** <CR> Response: **OK**	Only short press OK is not disabled to call last value and/or store the joint.
CLK	Click the wrench	CR at end	**CLK**<CR> Response: **OK**	
MOD	Change the mode	Set:MOD,<trck,peak,clic>	**MOD,peak** Change the mode to peak Response: **OK,peak** or **Error** if not peak, clic or trck	This cmd change the actual wrench mode, if there is no online joint stored in wrench the direct mode is changed and stored.
MOD	Get the mode	Get:MOD	**MOD** Response: **peak**	
GNJ	Get numbers of stored joint data	-	**GNJ**<CR> Response: **15**	
DJD	Delete all joint data	-	**DJD**<CR> Response: **OK** or **None Saved**	

Command	Description	Parameters	Examples	Additional Info
GJD	Get joint data	GJD,XXX XXX = Number of data record (001<=Number of data record < Response GNJ; 001 represent the latest data record)	**GJD,001** Response: **1,+0015546,0013600,+0006000, -0006000,+0000,0000,+0000,-0000,0000000, 0000022321,OK,torque,clic,Nm** 1 = Number of data record +0015546 = max torque 0013600 = torque set point +0006000 = +TOL torque -0006000 = -TOL torque +0000 = max angle value (=0 since torque mode) 0000 = angle set point +0000 = +TOL angle -0000 = -TOL angle 0000000 = sungpoint 0000022321 = Unix timestamp OK = result (OK / NOK) torque = mode clic = method Nm = unit (Nm, in lb & ft lb) Or **Error**	Please note: If only one record is stored you have to call GJD,001 GJD without a number returns the latest data record or Error if no record was saved.
GDS	Get direct state	Get: GDS	**GDS** Response: **Latest joint record (see GJD)** or **No new saved (after CLR cmd)**	returns the latest off-line data record until CLR is received
SDT	Set Default Shut Down Time	„Set: SDT,XXXX XXXX = time in seconds“	**SDT,0900** Set Shut down time to 15min Response: **OK,900** or **Error** if value > 9000 (=150min)	SDT,0000 disabled the auto shutdown function
SDT	Get Default Shut Down Time	Get: SDT	**SDT** Response: **900**	Response in seconds
ERR	Reset Errors /	Reset: ERR,xxxxx xxxxx = ErrorMSG	**ERR,OVERLOAD** Reset Error no overload **ERR,ALL** Reset all Errors Response: **OK,NO_ERRORS** or **OK,OVERLOAD** remaining errors	
ERR	Get Error	Get: ERR	**ERR** Response: ErrorMSG1,ErrorMSG2,….,ErrorMSGX Possible ErrorMSG: **OVERLOAD; ELECTRONIC ERROR 3 ELECTRONIC ERROR 4 OVER-VOLTAGE ERROR SERVICE-HINT** or **NO_ERRORS**	NO_MEMORY not possible anymore because of ring buffer implementation, oldest record is overwritten automatically
UNT	Change the unit	Set: UNT,xxxx xxxx = Nm; in lb; ft lb>	**UNT,in lb** Change the unit to inch pounds Response: **OK,in lb** or **Error** if not Nm; in lb; ft lb	This cmd change the actual wrench unit, if there is no online joint stored in wrench the direct mode is changed and stored.
UNT	Get the unit	Get: UNT	**UNT** Response: **ft lb**	
EXL	Change the extension length	Set: EXL,XXXX XXXX = extension length in 0.1mm	**EXL,0225** set extension length to 22,5mm Response: **OK,225** or **Error** if extension length out of limit	Extension length in 0.1mm. Extensionlength is stored in preset NVM. Max. value: /1 = 94mm /2 = 94mm /4 = 107,0mm /6 = 177,5mm /10 = 214mm /20 = 258mm /40 = 328mm /65 = 328mm /80 = 328mm /100= 328mm
EXL	Get the extension length	Get: EXL	Response: **225**	
IDN	Change the Ident number	Set: IDN,XXXX…. XXXX (16bytes)	**IDN,Production cell1** Response: **OK,Production cell1** or **Error**	The ident number is a 16 byte string
IDN	Get the Ident number	Get: IDN	**IDN** Response: **Production cell1** (every time 16 bytes)	
ICR	Only for internal use	-	-	For communication to IOT extension board
ICC	Only for internal use	-	-	For communication to IOT extension board
PWD	Change the password	Set: PWD,XXXX (4 digits)	**PWD,0123** Response: **OK,0123** (no error possible)	Default password = 1862 (4 digits)
PWD	Get the password	Get: PWD	**PWD** Response: **0123**	
CLC	Read clic counter	Get: CLC	**CLC** Response: **12345**	No leading zero

Command	Description	Parameters	Examples	Additional Info
LOC	Read load counter	Get: LOC	**LOC** Response: **12345**	No leading zero
TLV	Read four top load values	Get: TLV	**TLV** Response: **+0024087mNm,2149035405,** **-0021062mft lb,2149042007,** **-0027853mNm,2149041978,** **-0161747min lb,2149041997** Torque value 1 unit,Timestamp 1,…. Torque value 4 unit,Timestamp 4	Please note: The values are arranged in random order.
TST	Test command	TSTxxxxxx…xxx	**TST123456789** Response: **TST123456789**	Sent back the hole message for test purpose (max length = 115Bytes incl. TST)
RKS	Read Keys	Get: RKS	**RKS** Response: **NONE MENU HOME TARE OK** or **Error** if keys are not disabled	Return key pressed after DKS (Disable all keys) command. Please note: DKS command set key pressed to NONE.
SJN	Set Joint Name	**Set:** SJN,X,Y,ZZ….ZZ X: Color (see MSG cmd) Y: Flag for displaying name in headline during tightening (0 = not displayed) ZZ ZZ: max. 20 characters joint Name	**SJN,3,1,Wheel 123** **Display Wheel 123 in yellow in parameter list and during tightening.** **SJN,3,Wheel 123** **Display Wheel 123 in yellow in parameter list** **SJN,Wheel 123** **Display Wheel 123 in default color (2) in Only SJN deleted the name and settings** Response: **OK** or **Error** if color or flag could not parsed	Note: joint name is shrunk to 20 characters and it is only possible for online joints
SDJ	Set default joint	**Set:** SDJ	**SDJ** Response: **OK**	Default joint: Max. torque TOL = ±10% click Nm No fixing detection No TMP No joint name Default ext. length
TMP	Set torque multiplier and angular trans- mission	**Set:** TMP, XXX,YYY ZZZ = torque multiplier (1/10) YYY = angular transmission (optional) (1/10) **Get:** TMP CR at end	**TMP,050** Response: **OK,50,10** **50 = torque multiplier (5.0)** **10 = angular transmission (default = 1.0) TMP,150,145** Response: **OK,150,145** **150 = torque multiplier (15.0)** **145 = angular transmission (14.5)** or **Error** **10,10 (in this case no multiplier active)**	Max. torque multiplier size / Nm / In-lb / ft-lb 10 / 50,0 / 50,0 / 50,0 20 / 50,0 / 47,0 / 50,0 40 / 50,0 / 23,0 / 50,0 60 / 50,0 / 15,0 / 50,0 100 / 50,0 / 9,4 / 50,0 200 / 40,0 / 4,7 / 50,0 400 / 33,0 / 4,4 / 43,0 650 / 12,0 / 1,4 / 17,0 800 / 10,0 / 1,1 / 13,0 1000 / 8,0 / 1,0 / 11,0 Please note: If an angle depending joint is active (fixing detection also) the angular transmission must set.
STS	Get lock and keyboard status	**STS**	**STS** Response: **LCK,DKS**	Lockstate: **LCK** or **UCK** Keyboard-state: **DKS, D3K** or **EKS**
GSH	Get service hint	**GSH**	**GSH** Response: **Active** or **Not Active**	Service hint can only be reset by service center
BEP	Activate Buzzer	**BEP,X,YYY,ZZZ** X = number of beeps YYY = On-Time (ms) ZZZ = Off-Time (ms)	**BEP,3,500,200** Do 3 500ms long peeps with breaks of 200ms Response: **OK** or **Error** or **Bussy** **BEP** without parameters = **BEP,1,250,0**	CMD only works if wrench is not in use. In this case Buzzer is full controlled by measurement unit and wrench responds **Bussy** Please be careful. The command could confuse the worker

Please note: All commands or requests have to terminate with <CR>

We are constantly developing our products and programmes.
Don't miss any updates, download the latest documents here:
service.stahlwille.com



PROGRAMMING EXAMPLES

1 PROGRAMMING EXAMPLES

Theoretical descriptions can fill many pages and explain a lot. But when it comes to the specific application, nothing is as effective as a practical example.

In keeping with this ethos, you will find some everyday examples of frequent tightening cases on the following pages. And the control codes with which you can program the corresponding values and instructions in the MANOSKOP® 766 DAPTIQ® with little effort.

The wrench itself cannot handle a sequence, so the system in the background must handle each fastener step by step to make the sequence.

Example Sequence with 4 Bolts Tightenings:
1. 18 N·m, Tolerance +1,5N·m/-1N·m
2. 35 N·m, Tolerance +3,0N·m/-2N·m
3. 25 N·m, Tolerance +1,5N·m/-1N·m
4. 15 N·m, Tolerance +1,5N·m/-1,5N·m

Preconditions:
- 766 is connected via USB-Cable to the PC or via wireless-module, Base Station or Bluetooth Low Energy module
- Interface on 766 setup to “USB-CDC” (Cable) or “USB-ISM” (wireless-module)
- Driver on PC is installed, Com-Port is selected by PC
- Com-Port is open, and communication could start
- When the wireless module is used you must put the serial number of the wrench in front of the command. The answer from the wrench will still have the serial number in front
- When the cable connection is used you can send the commands directly to the wrench without using the serial number

For example: Wrench 766/10 with serial number 818031517 and connected wireless-module is used. The module will read out the serial number of the wrench and use this number for the wireless communication identification.

To set the real time clock (Unix Timestamp) over Cable example date: 22.10.2018, 14:25 UTC+1
PC: RTC,1540211100
766: OK

To set the real time clock (Unix Timestamp) over wireless example date: 22.10.2018, 14:25 UTC+1
PC: 818031517RTC,1540211100
766: 818031517OK

Note: These programming examples are for the wireless communication, if you use the cable version you have to ignore the serial number in front of the commands and answers.

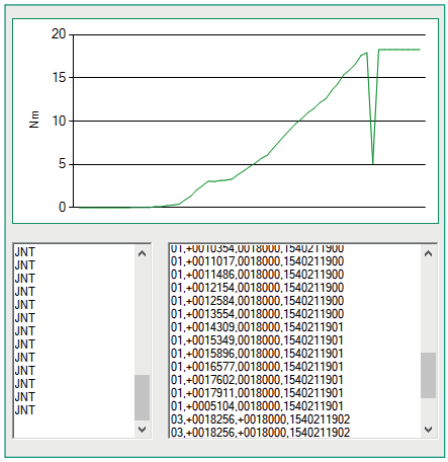
To program the wrench, choose the JNT command.
SEND: 818031517JNT,0017000,+0001700[+Tol],–0001700[–Tol]
= Set joint with setpoint of 17 Nm and TOL ±1,7Nm
SEND: 818031517JNT
= To get the actual response of wrench
Answer from 766: 81803151701,-0000004,0017000,1540211100
01 = status of Joint

00= no joint active
01= joint active
02= joint Inactive
03= joint passed
04= joint failed

-0000004 = actual measured torque
0017000 = target torque
1540211100 = UNIX timestamp

Programming 1st Bold

PC: 818031517JNT,0018000,+0001500,-0001000
766: 818031517ParseOK,0018000,+0001500,-0001000
PC: 818031517JNT
766: 81803151701,-0000004,0018000,1540211100
To get the live data the system must poll the JNT command to the wrench to get the actual measurement and joint status.



After finishing the job:
PC: 818031517JNT
766: 81803151703,+0018021,+0018000,1540211105
The wrench has clicked at 18.02 N·m, the evaluation was passed.

Programming 2nd Bold
PC: 818031517JNT,0035000,+0003000,-0002000
766: 818031517ParseOK,0035000,+0003000,-0002000
PC: 818031517JNT
766: 81803151701,-0000004,0035000,1540211110
To get the live data the system must poll the JNT command to the wrench to get the actual measurement and joint status. After finishing the job:
After finishing the job:
PC: 818031517JNT
766: 81803151703,+0035357,+0035000,1540211115
The wrench has clicked at 18.36 N·m, the evaluation was passed.

Programming 3rd Bold

PC: 818031517JNT,0025000,+0001500,-0001000
766: 818031517ParseOK,0025000,+0001500,-0001000
PC: 818031517JNT
766: 81803151701,+0000056,0025000,1540211120
To get the live data the system must poll the JNT command to the wrench to get the actual measurement and joint status.

After finishing the job:
PC: 818031517JNT
766: 81803151704,+0026591,+0025000,1540211125
The wrench has clicked at 26.59 N·m, the evaluation was failed.

Programming 4th Bold
PC: 818031517JNT,0015000,+0001500
766: 818031517ParseOK,0015000,+0001500,-0001500
PC: 818031517JNT
766: 81803151701,+0000089,0015000,1540211130
To get the live data the system must poll the JNT command to the wrench to get the actual measurement and joint status.

After finishing the job:
PC: 818031517JNT
766: 81803151703,+0015701,+0015000,1540211135
The wrench has clicked at 15.70 N·m, the evaluation was passed.

If you want to program just 1 fastener and use it more than one time you must program the wrench like:

Programming Bold
PC: 818031517JNT,0015000,+0001500
766: 818031517ParseOK,0015000,+0001500,-0001500
PC: 818031517JNT
766: 81803151701,+0000078,0015000,1540211140
To get the live data the system must poll the JNT command to the wrench to get the actual measurement and joint status.

After finishing the job:
PC: 818031517JNT
766: 81803151703,+0015636,+0015000,1540211145
The wrench has clicked at 15.70 N·m, the evaluation was passed.

If you want to use these settings again, you must reset the joint status.
PC: 818031517CLR
766: 818031517Cleared
PC: 818031517JNT
766: 81803151701,+0000089,0015000,1540211150

Now the wrench is ready to do the next joint.

STAHLWILLE Eduard Wille GmbH & Co. KG · Lindenallee 27 · 42349 Wuppertal · Germany
Tel.: +49 202 4791-0 · Fax: +49 202 4791-200 · info@stahlwille.de · www.stahlwille.com

© STAHLWILLE Eduard Wille GmbH & Co. KG // 0-02-25 WEB // V 1.2 // 91972221