Service Data Tool 2 for OpenBus™ Control Boxes and Batteries

User Manual

LINAK® WE IMPROVE YOUR LIFE

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Introduction

Service Data Tool ensures efficient maintenance of healthcare applications

Service Data Tool enables easy read-out of service data from OpenBus™ control boxes and batteries.

Usage

- Compatible with OpenBus control boxes, CB6 MK2, BA16, BA19, BA2, CBJC, BAL50 and more
- Compatible with Windows 10 and 11

Batteries supported in SDT	PCP 1.0	PCP 2.0
BA16		X
BA19		X
BA22		X
BAL50		

The version number on the product label will tell the PCP version

If the version number is 1.xx or less, the battery is PCP 1.0

If the version number is 2.xx or more, the battery is PCP 2.0

Before getting started with reading out service data on a PC

Equipment needed to read out service data

When reading out service information on a PC you need:

- Service Data Tool 2 version 2.7.9 or newer version installed on the PC.
- The software will be provided from your local LINAK sales representative.
- An OpenBus™ programming and data read out box (LINAK item number IB300001)
- A service readout cable (LINAK item number 0964198)
- Modular junction box for connection of Service Data Tool (LINAK item number MJB000(3/4/5)000-1023)
- Cable for connection of the Modular junction box to COXX (LINAK item number 0964461-XXXX-A)
- One USB A-B cable

How to connect the equipment and get started

1. First, make sure that Service Data Tool drivers and the Service Data Tool 2 software (version 2.7.9 or higher) is installed on your PC. If Service Data Tool drivers and the Service Data Tool software are not installed, please contact your local LINAK subsidiary for the install files. Connect the equipment as shown in the following system overviews.
2. Wake the COXX (by pressing a button on the hand control or by pressing the foot switch).
3. Enter the Start menu on your PC and open the Service Data Tool (SDT2).
4. When connection is successful, the red indicator ("Supply 8V Missing") in the current PC window changes to green.

OneConnect

For a simple, wireless alternative to Service Data Tool that can be used with Android and iOS devices, please see OneConnect by LINAK.

OneConnect is a powerful app designed to better connect you to your end users and improve troubleshooting like never before.

- View system status on the fly
- Access system data via Bluetooth®
- Remotely access system data from anywhere in the world
- Customise your help content
- Brand to your company's aesthetics

To learn more about these features and how to get started with OneConnect for your products, visit the OneConnect landing page and contact us today.

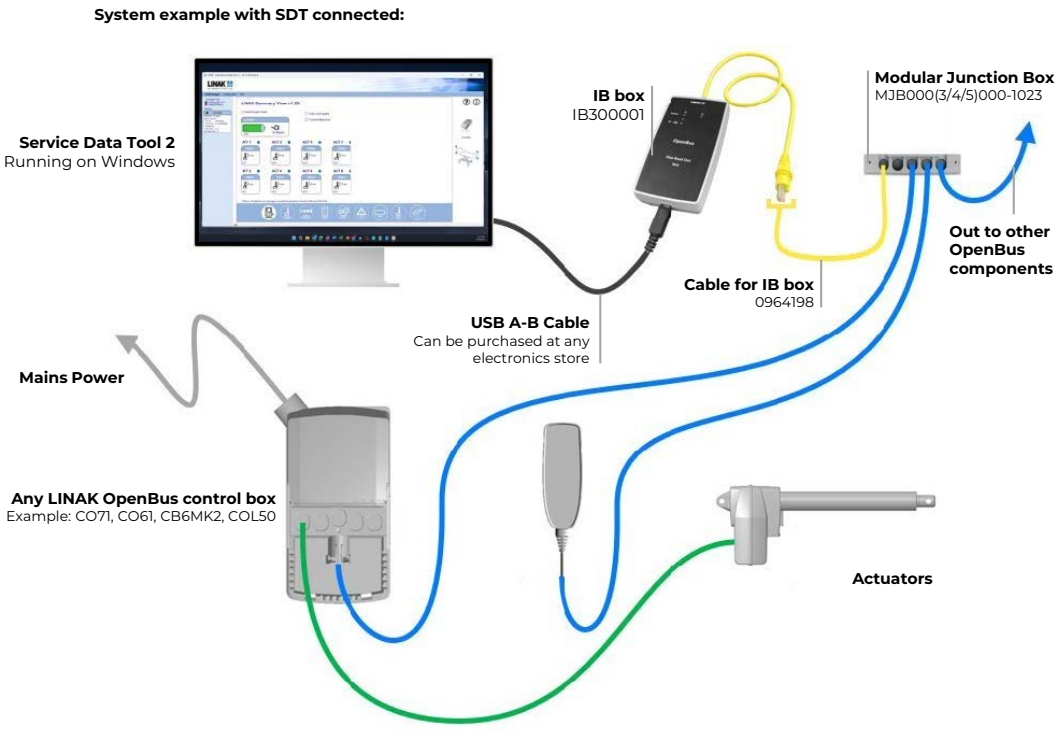
Compatible LINAK Bluetooth control boxes are: COL50, CO71, CO61 (select versions), CA63, CAL40+, and CO53 (select versions).

SDT2 for CO control boxes

System overview for CO control boxes

The LINAK IB3 tool (the SDT "box") allows for service data read-out from most LINAK systems with a modular (also called RJ50) connection. Below is a diagram of how this IB3 tool is often connected to a standard LINAK system via a Modular Junction Box (MJB).

While it is also possible to connect the yellow connector directly to the CO control box, it is advisable to do so through an MJB so other components can still be connected and ready to send commands, both to wake up the system for the SDT2 program, but also to run the system for troubleshooting purposes.



Information

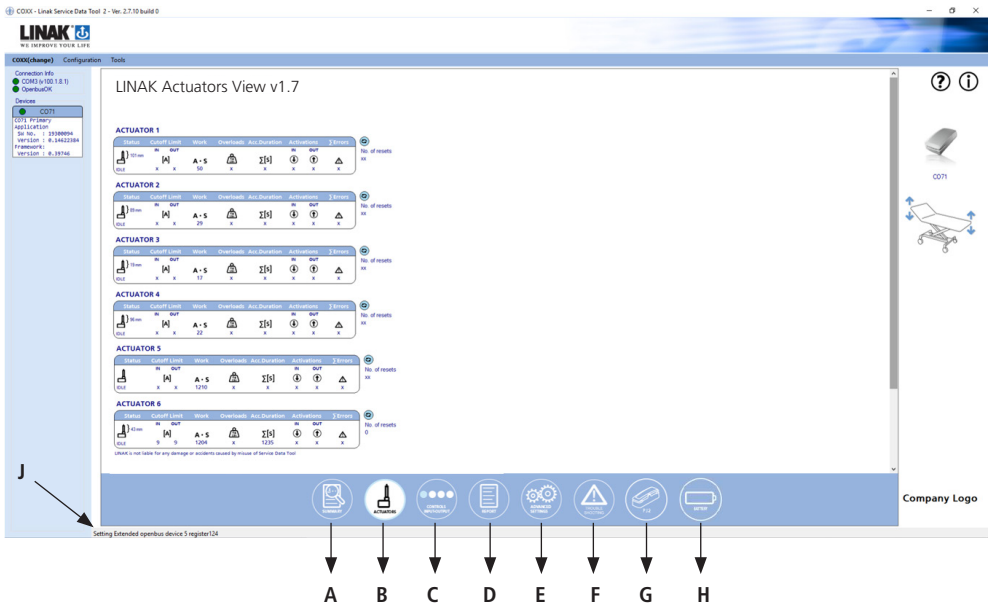
Please remember to order cables, the modular junction box and the IB300001 box for data read-out from COXX to PC.

Article number	Product
IB300001	Box for data read out from COXX primary or COXX secondary to PC
MJB000 (3/4/5) 000-1023	Modular Junction box for connection of Service Data Tool and foot switch, hand control or other OpenBus™ accessories
0964198	Cable for usage of Service Data Tool (from MJB to IB300001 box)
0964461-xxxx-A	Cable for connection of MJB to COXX: Straight, RAL 7035, Modular Jack, RAL7035, Modular jack, length xxx mm
SML912497-A	Splitter mains cable for COXX primary and COXX secondary

Reading out service data on a PC

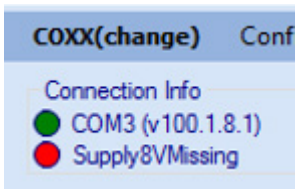
Ensure that the COXX or battery view is initiated by pressing the menu shown.

Please contact your local LINAK Supplier for support if this is not the case.



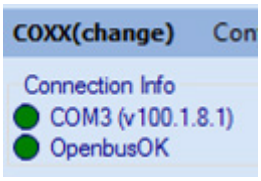
Indicates that the connection is working 100%

Indicates something is missing or has an error. A small text right to the LED informs about the problem.



Connection to IB30 box OK

Control Box connected = 8V missing



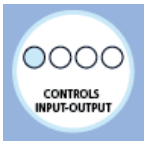
Com Port Connection SDT IB30 version

OpenBus Ok/Fail

User interface

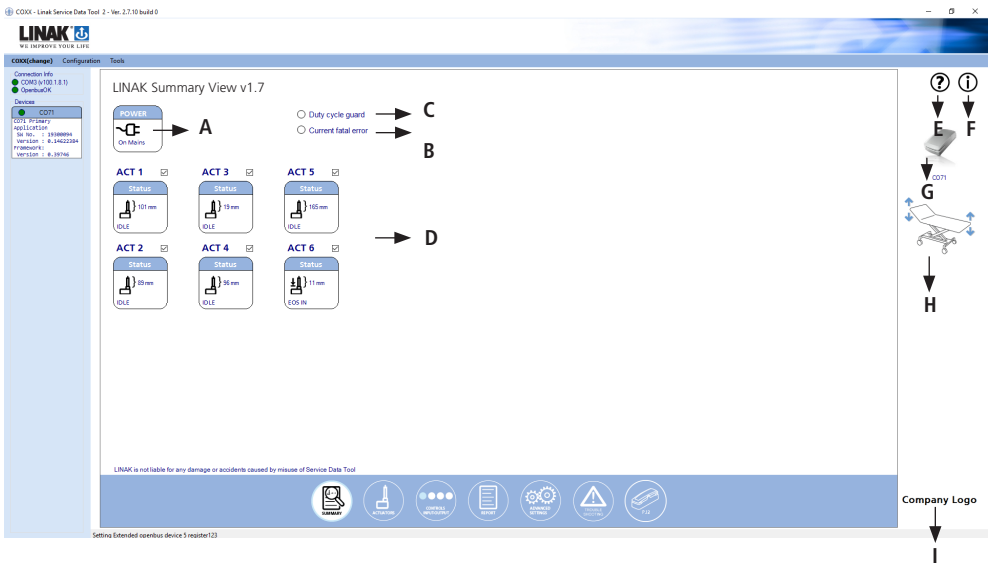
The Service Data Tool for COXX is developed with focus on user friendly design which is easy to use.

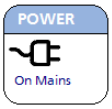
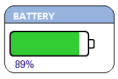
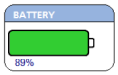
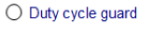
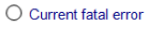
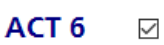
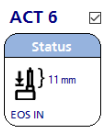
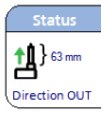
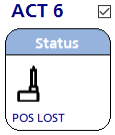
Information is divided into sections as below:

	Symbol	Explanation
A		For quick and easy overview of actuators info and fatal error status. Please notice: A new actuator connected is only visible in the Service Data Tool view if it has been running in outward or inward direction – A*S>0.
B		For detailed information about the actuators' statistical service data. For refreshing data from the control unit connected. For update of information when replacing the actuator.
C		For detailed information about hand control signals and codes.
D		For service reporting, production number, software number, item number of the application. Saving complete and relevant information for actuators data and service.
E		**Intended for trained and authorised service technicians only.** For update of actuator info if the control is replaced to maintain service data.
F		For detailed information about errors on the actuator, control box or the controls. Easy download of log file to send for further technical support
G		Please notice! This section is only visible, if the control box software specifies actuators used on Port Junction box PJ2. For detailed information about Port Junction Box
H		Please notice! This section is only visible when COXX is connected to LINAK Battery lithium Ion battery. For information about battery life, charging state and use.
J	Status bar	Status is either IDLE or Reading Extended OpenBus device 8 register 20 It means that SDT is reading data – please wait.

Sections are updated every second to keep data updated. Please re-start SDT if the control box has powered down or disconnected. For further help and recommendations on each section, please press the help icon ⓘ

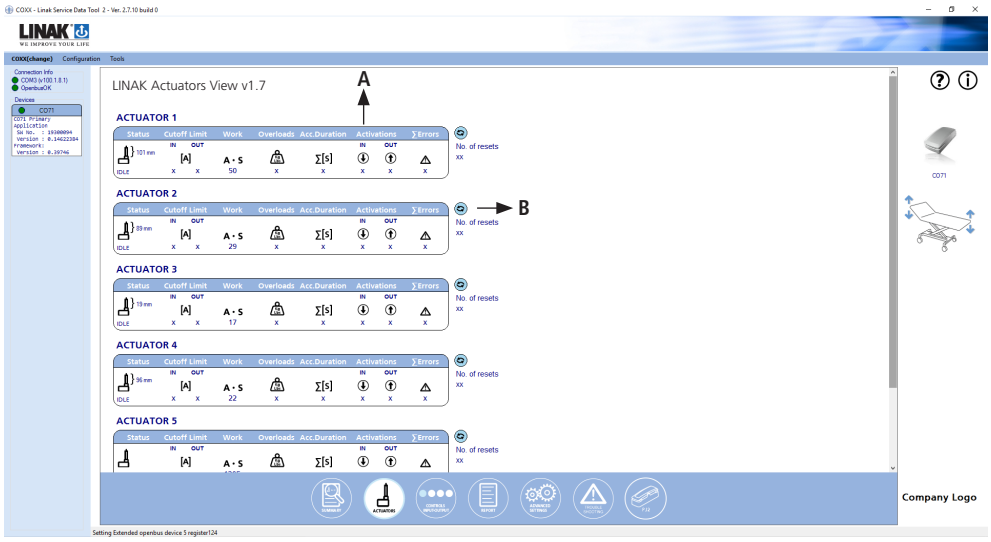
Summary view



	Symbol	Explanation
A		This symbol indicates that COXX is connected to mains power.
		This symbol indicates that COXX is operating on a Lithium Ion battery. **Battery Status is indicated by % and colour:** **Green:** Battery fully charged (approx. 100-40% capacity remaining) **Yellow:** Charging recommended (approx. 40-21% capacity remaining) **Orange:** Low critical battery level. (Depending on the COXX SW there will be audio signal when the hand control is activated. Limited the actuator function).
		This symbol indicates that COXX is operating on a BA19 battery, Lead Acid. Regularly charging or charging before use is recommended as battery status indication is not available. **Green:** Battery will remain green. Please notice! There is no low battery warning.
B		If the LED is orange, it indicates that the COXX has stopped operating due to the duty cycle guard.
C		If the current fatal error LED is orange then you have fatal error and can use the troubleshooting section and button to for help.
D		Selected or de-selected the actuators you want to monitor
		The actuator position is shown with numbers.
		The green arrow indicates that the actuator is working and shows which direction, which is also written. Status can be; Direction In, Direction Out, EOS in, EOS out or IDLE
		If the actuator has lost its position, POS LOST indicator will occur in the status bar

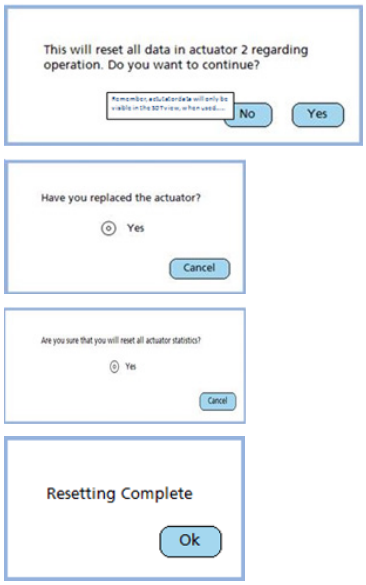
	Symbol	Explanation
E		Help manual of what the different functions means.
F		The customer can add their own information as PDF-file.
G		A picture of the control box
H		The customer can change the application picture.
I	Company logo	The customer can add their own LOGO.

Actuator view



Example given with a 6-actuator system

	Symbol	Explanation
A	Cutoff Limit IN OUT [A] 3 3	To ensure that the application will stop if the current draw exceeds the preset limits.
	Work A • S 21	Total work on the actuator (A*S): Work indicator for the actuators measures via ampere usage *seconds in use. The work indicator gives a very good indication of how much the actuator is worn.
		LA20: 10.000 cycles in life test equals: 1.300.000 A*S LA23: 10.000 cycles in life test equals: 1.400.000 A*S LA27: 10.000 cycles in life test equals: 3.700.000 A*S LA31: 10.000 cycles in life test equals: 3.000.000 A*S LA34: 10.000 cycles in life test equals: 4.300.000 A*S LA43: 10.000 cycles in life test equals: 2.500.000 A*S LA40: 10.000 cycles in life test equals: 3.800.000 A*S (LA40 6000 N) LA40: 10.000 cycles in life test equals: 4.400.000 A*S (LA40 PL 8000 N) LA40: 10.000 cycles in life test equals: 2.900.000 A*S (LA40 HP 8000 N) LA44: 10.000 cycles in life test equals: 5.000.000 A*S BL1: 10.000 cycles in life test equals: 2.200.000 A*S LC1: 10.000 cycles in life test equals: 3.290.000 A*S LC3: 10.000 cycles in life test equals: 6.400.000 A*S
		The work indicator on each actuator can be reset by pressing
	Overloads 0	Total number of overloads reached inwards and outwards. If more actuators are moving at the same time during an overload situation the overload figure will be counting on all running actuators
	Acc.Duration Σ[s] 85	Accumulated activity duration time in seconds.

	Symbol	Explanation
		Read out how many times a control button has been activated inwards
		Read out how many times a control button has been activated outwards
		Numbers of errors per actuator. The indicator can only be reset by exchanging the actuator through SDT2 "Actuator" menu.
		Activate this button for update of data when the actuator has been replaced. When a new actuator has been connected it can be re-initiated to start from zero. If "replace" is not activated the COXX believes the first actuator is still connected and the wrong data will be shown. Please notice: A new actuator connected is only visible in the Service Data Tool view if it has been running in outward or inward direction – A*S>0. When you activate this button it will also reset the number of errors per actuator – see the summary section. The number "0" indicates the number of resets per actuator. Before resetting is complete there will be dialogue boxes like… 

How to conclude on the service information

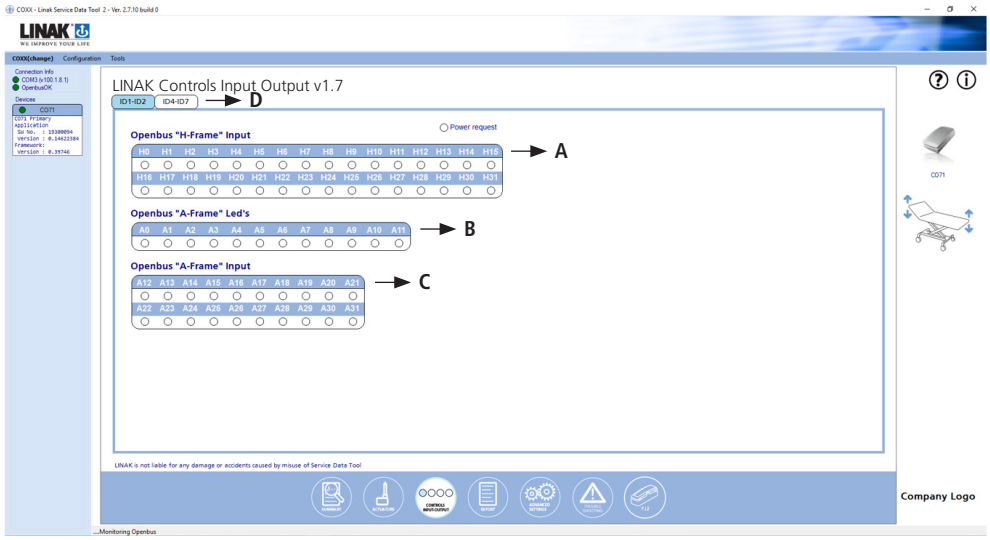
Total work:

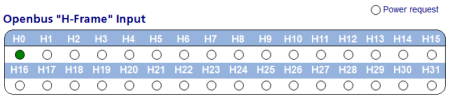
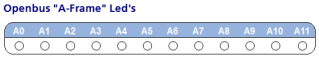
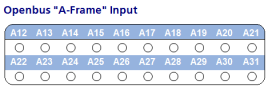
Please contact the manufacturer of the bed application or medical application e.g. couch / table or chair for treatment and examination. The manufacturer will decide when it is appropriate to consider exchanging the actuator.

Overload:

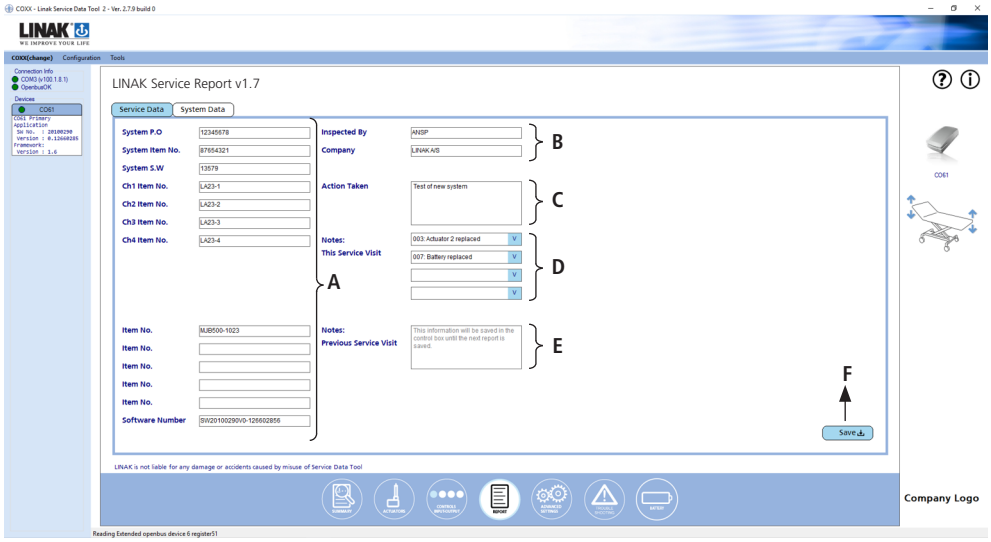
If overload has occurred it is recommended to consider stronger lifting equipment with higher working load for the particular patient / institution.

Controls view



	Symbol	Explanation
A	Openbus “H-Frame” Input 	OpenBus Signals
B	Openbus “A-Frame” Led’s 	OpenBus Diode Signals
C	Openbus “A-Frame” Input 	OpenBus Button Signals
D	ID4-ID7 Service (ID4) ExBits (ID5) Res (ID6)	Additional OpenBus Signals overview

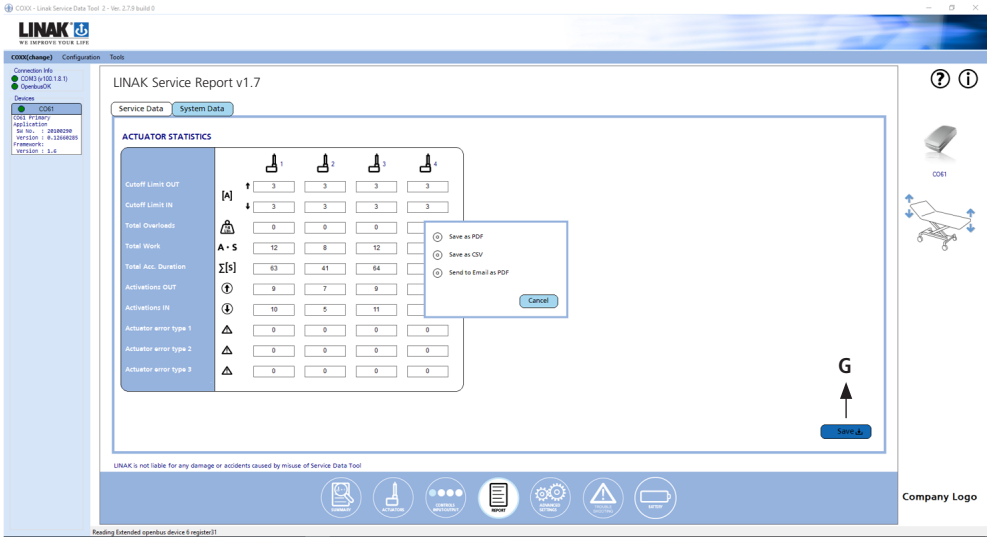
Report view



Example given with a 4-actuator system

	Symbol	Explanation
A	System P.O 12345678 System Item No. 87654321 System S.W 13579 Ch1 Item No. LA23-1 Ch2 Item No. LA23-2 Ch3 Item No. LA23-3 Ch4 Item No. LA23-4 Item No. MJB500-1023 Item No. Item No. Item No. Item No. Software Number SW20100290V0-126602856	Write the information which is on the label of the product.
B	Inspected By Service Technician Company Service Company XX	Fill in the information; Inspected by, Company
C	Action Taken This text will only be saved in the document – pdf or csv file.	Description made in this box will be read out when the report is saved.
D	Notes: This Service Visit 003: Actuator 2 replaced 007: Battery replaced	Choose up to 4 notes after the service visit. Messages for the next service visit - will be stored and readable at next visit. Saving is confirmed. Service code has been saved successfully to the control box. OK
E	Notes: Previous Service Visit This information will be saved in the control box until the next report is saved.	Up to 4 notes readable from the previous service visit.

Example given with a 4-actuator system

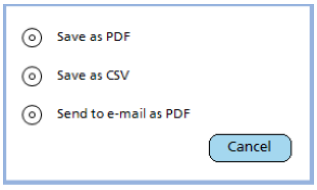


F

When the application has been checked and the information completed, press "save" to save as PDF, CSV, send to Email. Relevant actuator statistics and system data will be included in the report.

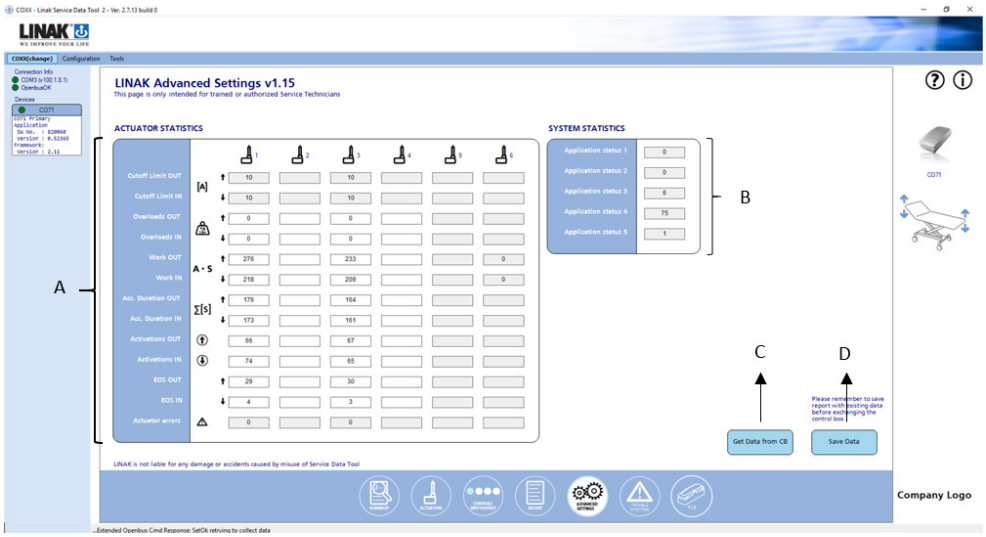
Please notice that outlook has to be available. Outlook will open automatically when report download is started.

G

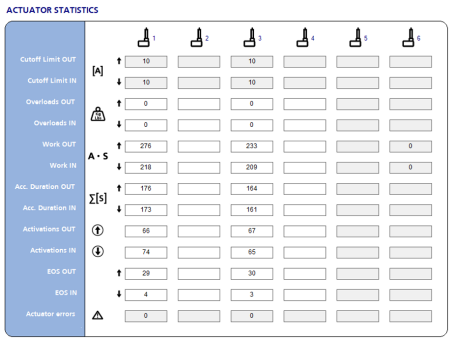
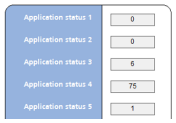
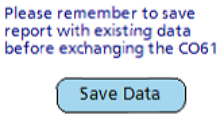


If the COXX is connected to a Battery, Lithium Ion battery – all battery data will also be saved

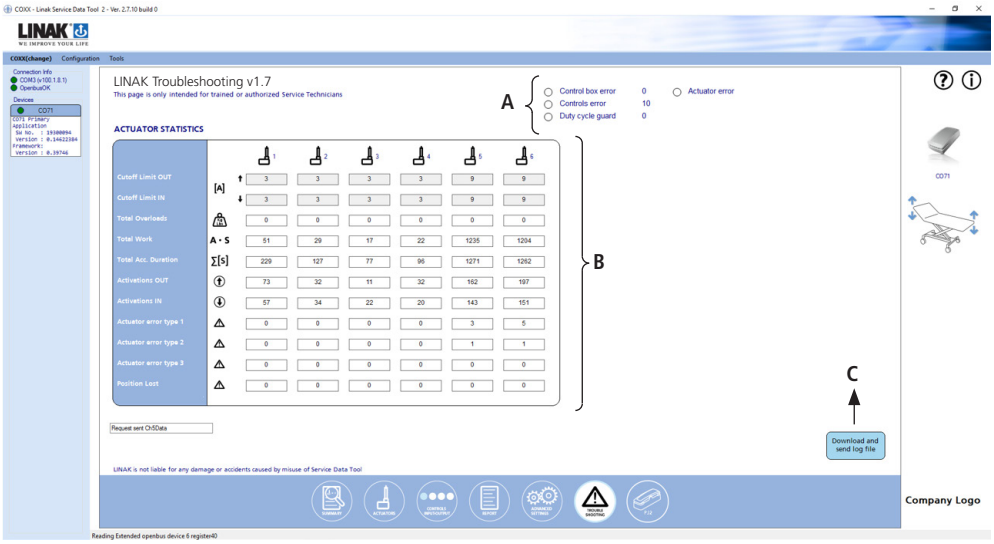
Advanced settings view



Example given with a 6-actuator system

	Symbol	Explanation
A		Remember to update actuator info **if the COXX is replaced**. In this way you maintain the statistical service data information on the actuators.
B		Read out data related to unique customised functions
C		Get/Retrieve data from CB: When entering new data the data will be visible with bold script. “Get Data from CB” undo changes and retrieve existing data from the control box.
D		Remember to save report with existing data before exchanging the Control box. Save new settings: This will reset the above information with the new data filled in.

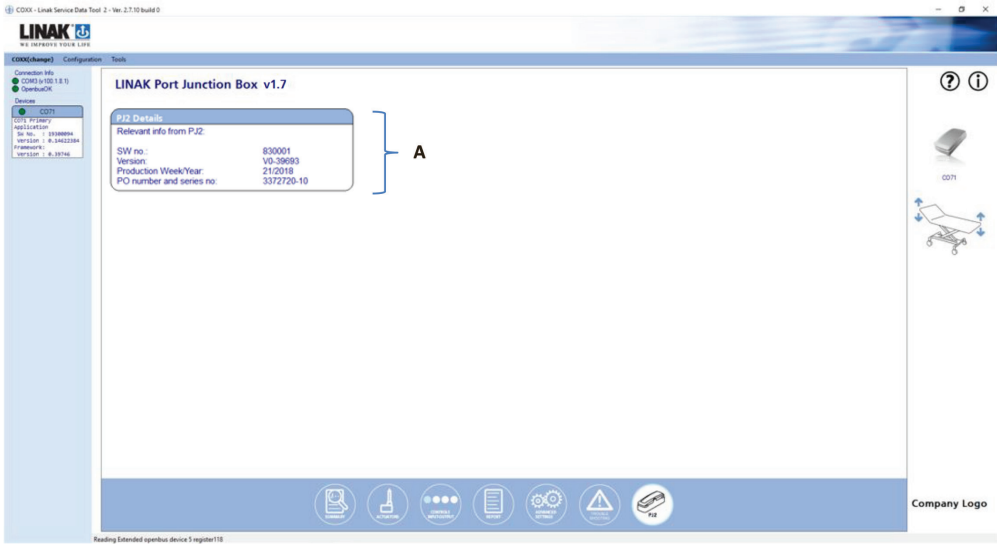
Troubleshooting view



Example given with a 6-actuator system

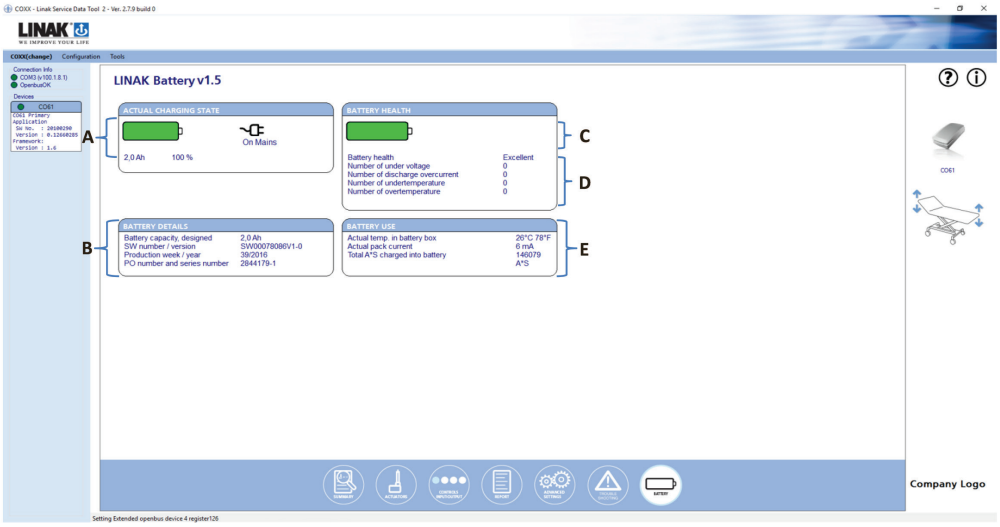
	Symbol	Explanation
A	Control box error 0 Controls error 2 Duty cycle guard 0	The LED is orange if there is a failure or error. The orange triangle symbol is shown next to the channel where the failure is detected. The total number of errors is stated and can only reset by replacing the control box and press the following button in the Advanced settings section Get Data from CB
B	Actuator error	The LED is orange if there is an actuator error. Please see the actuator statistics for the total number of errors per actuator.
C	ACTUATOR STATISTICS	Overview of the number of errors per channel. When an actuator has been replaced and the data are updated by pressing the refresh button in the actuator section – the number of failure or error per channel will also be updated
D	Download and send log file Download is in progress. Please wait... The report has been sent to email. Ok	Press this button to download and send a log file with all actuator statistics and troubleshooting data. The log file will be sent to your outlook for easy forward to your LINAK contact for further support Please notice that outlook has to be available. Outlook will open automatically when report download is started. Status information and confirmation of successful download of Troubleshooting report will be shown.

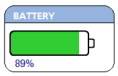
PJ2 Junction box view



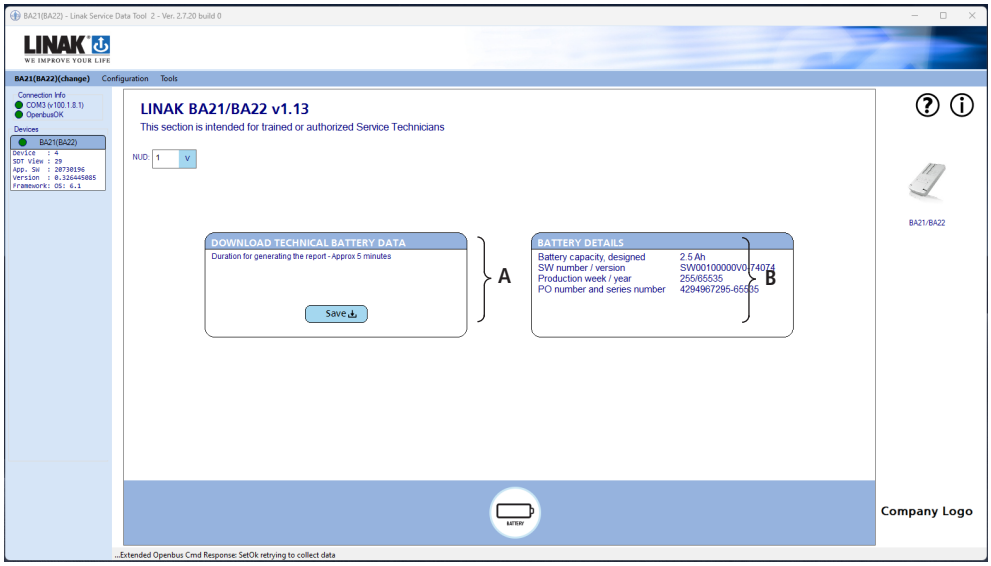
	Symbol	Explanation
	Please note that this section is only visible when PJ2 is connected to a LINAK control box. Data are slowly updated.	
A	PJ2 details	Automatic read-out for the PJ2 for easy identification.

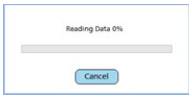
Battery view



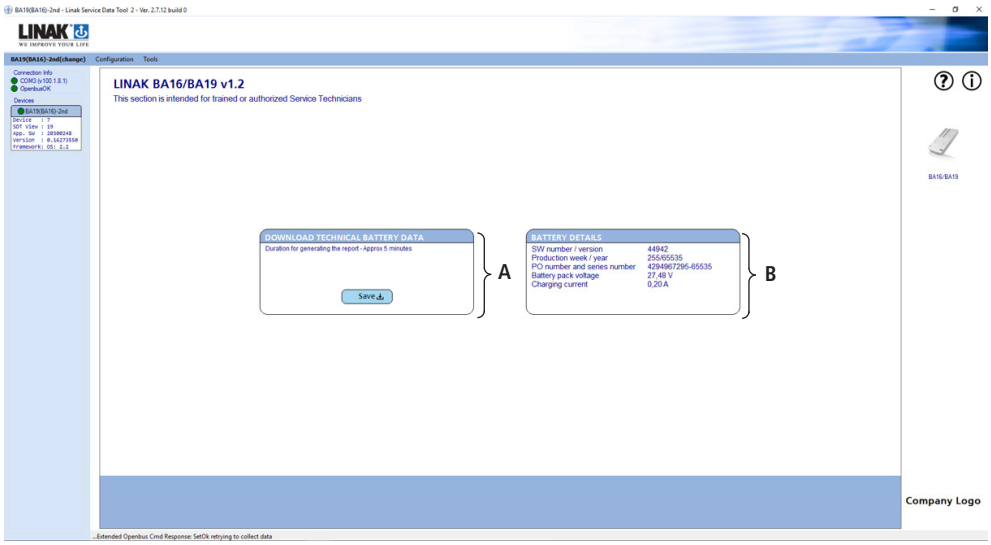
	Symbol	Explanation
	Please note that this section is only visible when COXX is connected to a LINAK battery.	
A		This symbol indicates that COXX is connected to mains power.
		This symbol indicates that COXX is operating on a Lithium Ion battery. **Battery Status is indicated by % and colour:** **Green:** Battery fully charged (approx. 100-40% capacity remaining) **Yellow:** Charging recommended (approx. 40-21% capacity remaining) **Orange:** Low critical battery level. (Depending on the COXX SW there will be audio signal when the hand control is activated. Limited the actuator function).
B	Battery details	Automatical read-out of the battery details for easy identification of the battery
C	Battery life 	**Battery life is indicated by % and colour:** **Green:** Excellent battery life (approx. 100-70% capacity remaining) **Yellow:** Good battery life (approx. 69-30% capacity remaining) **Orange:** Critical battery life - replace battery (below 30% capacity remaining)
D	Battery health	The use of the battery affects the battery health and the number of incidents of the following can also help explaining the battery health and the length of the battery life. These statistical data are also useful for service evaluation.
E	Battery use	This section indicates the use of the battery. The work indicator for the battery measures via ampere usage*seconds in use. The work indicator gives a very good indication of how much the battery is worn. These statistical data are also useful for service evaluation. For BA21 battery, 500 full charging/decharging cycles is approc. 2.700.000 A *S. However, this is only a rough guideline as a lot of factors will affect the BA21 lifetime, e.g. how the battery is used and charged. See the Battery Section for further details.

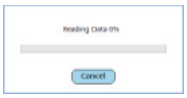
BA22 Battery Service view



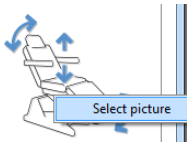
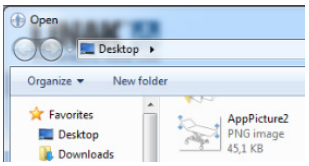
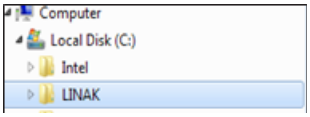
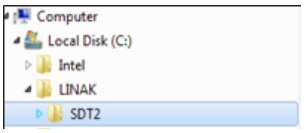
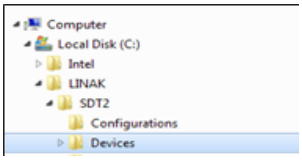
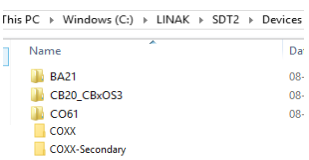
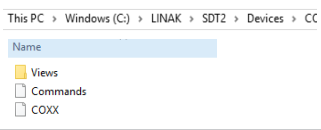
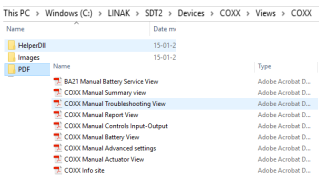
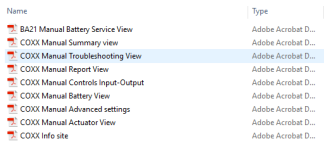
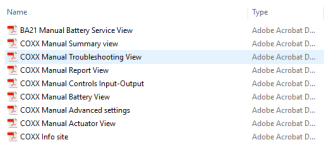
	Symbol	Explanation
		Please notice! This Service Data Tool section is only to be used when support of LINAK BA22 lithium Ion battery. Please notice that outlook has to be available. Outlook will open automatically when report download is started. If you have a CO-Link system, it is possible to read-out battery statistics from two batteries connected to the primary COXX and the secondary COXX respectively. Choose the BA22 view Battery for read-out of statistics connected to the COXX primary control box. Choose the BA22 view Battery secondary for read-out of statistics connected to the COXX secondary control box. Having a system where the battery is connected to a PJ2, the duration for generating the report can take up to 10 min.
A	Save	Press "save" to download a battery log file as CSV and send to Email. The Battery details and relevant Battery statistics will be included in the report. These data are useful for further technical analysis of the battery.  Download status indication. 
B	Battery details	Automatically read-out of the battery details for easy identification of the battery

BA16/19 Battery Service view



	Symbol	Explanation
		Please notice! This Service Data Tool section is only to be used when support of LINAK BA16 / BA19 Lead acid batteries. Please notice that outlook has to be available. Outlook will open automatically when report download is started. If you have a CO-Link system, the Service Data Tool it is possible to read-out battery statistics from two batteries connected to the primary COXX and the secondary COXX respectively. Choose the BA16/BA19 view for read-out of statistics from BA16/BA19 connected to the COXX primary control box. Choose the BA16/BA19 2nd view for read-out of statistics from BA16/BA19 connected to the COXX secondary control box.
A	Save	Press "save" to download a battery log file as CSV and send to Email. The Battery details and relevant Battery statistics will be included in the report. These data are useful for further technical analysis of the battery.  Download status indication. 
B	Battery details	Automatically read-out of the battery details for easy identification of the battery

How to change the application picture, company logo and information PDF-file

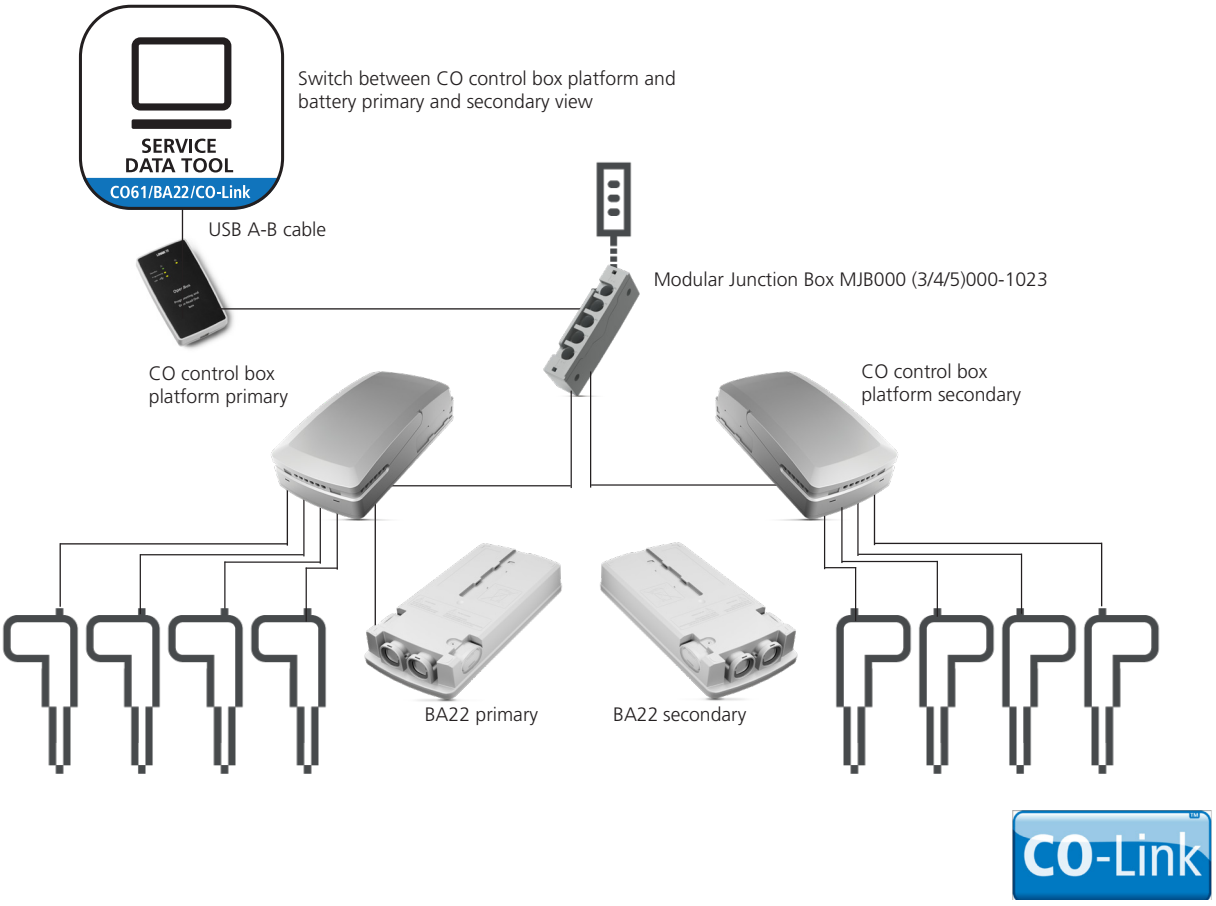
	Symbol	Explanation
		Click on the application picture or company logo with the right mouse button to select another picture or logo. Please use the file type JPEG or PNG.
		Choose the application picture from your desktop. The size of the new application picture or company logo should be: Application picture: Width 138 pixels, Height 112 pixels Company logo: Width 150 pixels, Height 18 pixels
1		To change the pdf files: help or info – ? Open Computer ⓘ
2		Open the drive including “LINAK”
3		Open SDT2
4		Open Devices
5		Open the software-map for COXX
6		Click on devices, COXX and views
7		Click on PDF to change a pdf file in one of the sections or to add an info file
8		Rename the existing pdf file. For example from “Info site” to “OLD” Remember to save or write the name you just have changed. In this example you have to remember “Info site”
9		Copy the file you want to add to the folder and rename the new pdf with the name of the pdf you want to replace. If we take the example from point 8, you have to change it to “Info site”

SDT2 for CO-Link systems

System overview for CO-Link systems

The LINAK IB3 tool (the SDT "box") also allows for service data read-out from LINAK CO-Link systems with a modular (also called RJ50) connection. Below is a diagram of how this IB3 tool is connected to a LINAK CO-Link system via a Modular Junction Box (MJB). For CO-Link, it is not possible to connect the yellow connector directly to the CO control box.

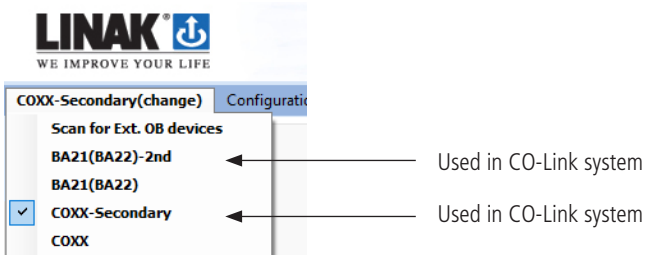
An MJB is required to maintain the CO-Link communication, and an MJB is recommended so other components can still be connected and ready to send commands, both to wake up the system for the SDT2 program, but also to run the system for troubleshooting purposes.



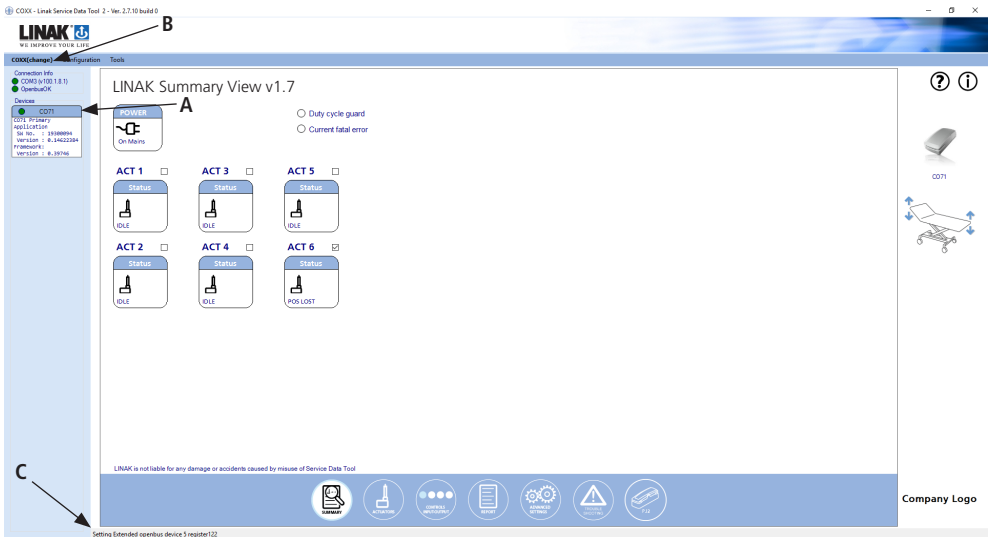
CO-Link system explanation

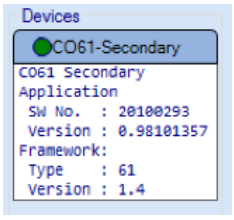
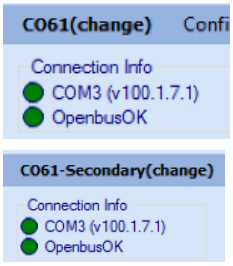
When Service Data Tool is opened there will be access to the versions below. COXX, BA16/BA19 and BA22 are the primary views. Secondary views are only used for CO-Link systems.

Example:



It is easy to identify the selected view by looking in the upper left corner – here it is the COXX primary view used for the CO-Link system.



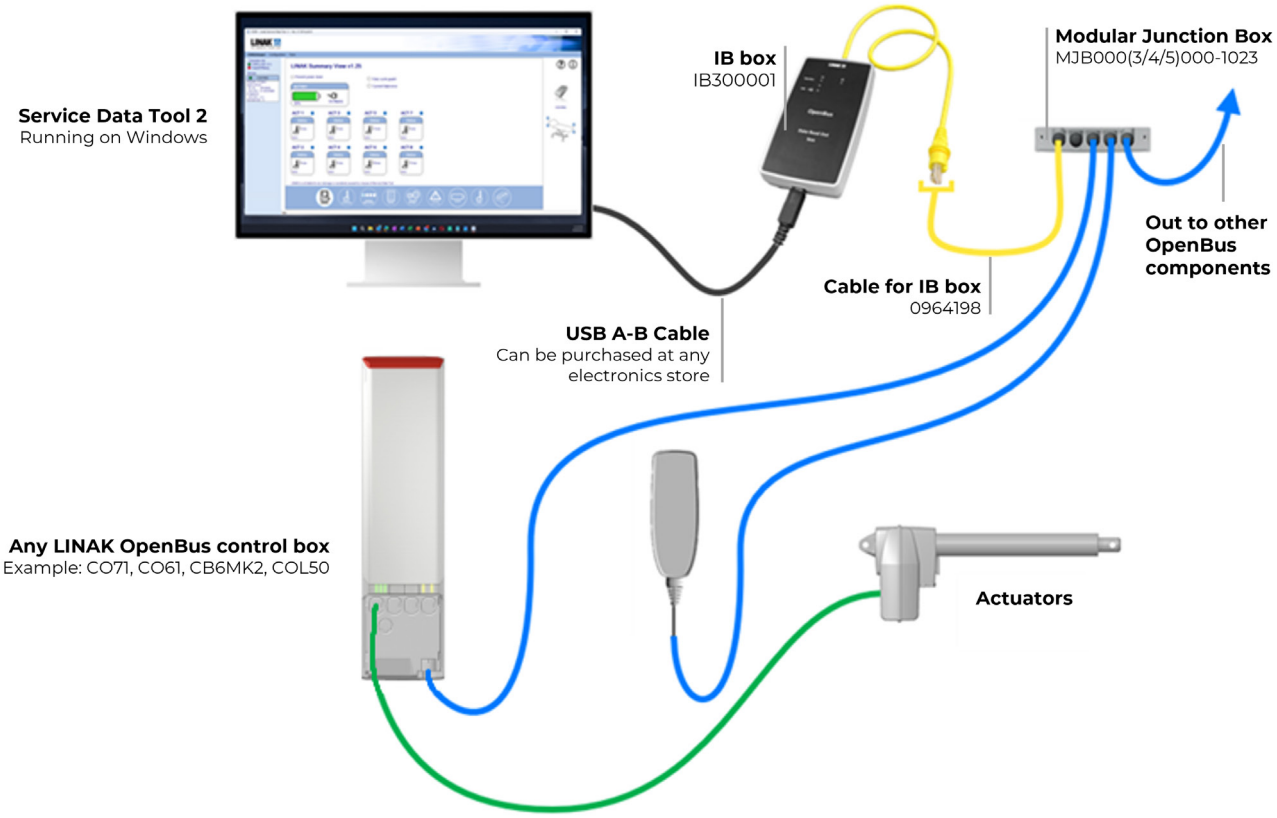
	Symbol	Explanation
A		CO-Link is used when two control boxes e.g. COXX are connected in a system with control of up to 8 movements / actuators. Look into the device information to see if the service data are read out from the COXX primary or secondary. The COXX primary and COXX secondary views have exact the same layout and information available. Only difference is that data are read-out from two different control boxes – COXX.
B		Service Data Tool COXX primary shows service data for up to 4 actuators. Service Data Tool for COXX secondary shows service data for up to 4 actuators. Service Data Tool can only be opened for the COXX primary OR the COXX secondary – one at the time. Choose between the two Service Data Tool versions COXX (change) – Service Data Tool for COXX Primary COXX Secondary (change) – Service Data Tool for COXX Secondary
C	Status bar	Service Data Tool is either IDLE or reading data. The message means that SDT is reading data – please wait Reading Extended openbus device 8 register20

SDT2 for LIFT50 systems

System overview for LIFT50

The LINAK IB3 tool (the SDT "box") can also be used for service data read-out from the LIFT50 control box with a modular (also called RJ50) connection. Below is a diagram of how this IB3 tool is connected to a standard LIFT50 system via a Modular Junction Box (MJB).

While it is also possible to connect the yellow connector directly to the CO control box, it is advisable to do so through an MJB so other components can still be connected and ready to send commands, both to wake up the system for the SDT2 program, but also to run the system for troubleshooting purposes.



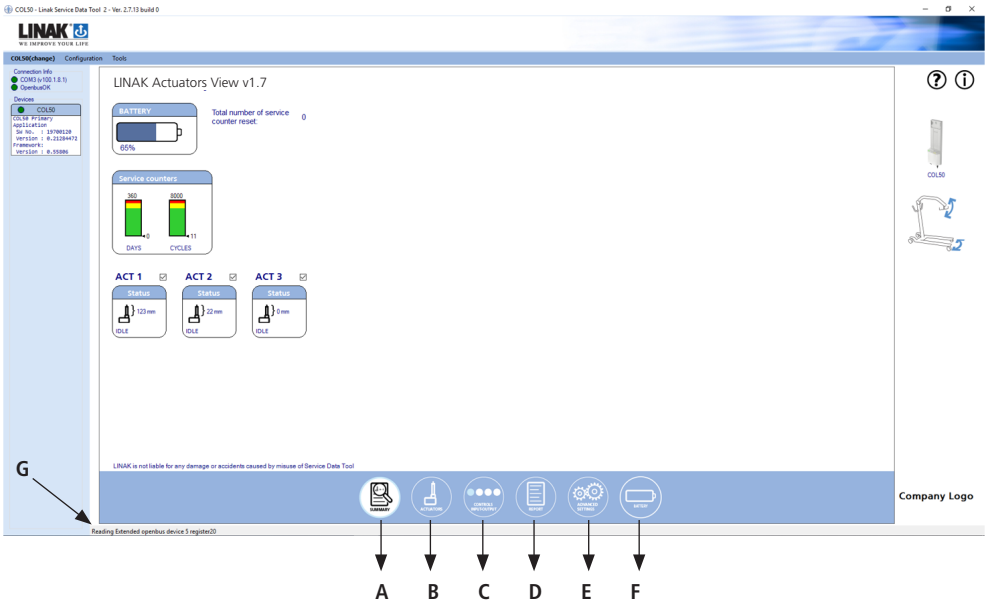
Information

Please note that the following view is now called "LIFT" instead of "COL50" in SDT ver. 3 and above and is an included view (does not need to be imported first).

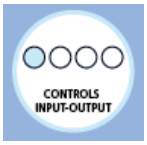
Reading out service data on a PC

Ensure that the COL50 or battery BAL50 view is initiated by pressing the menu shown.

Please contact your local LINAK Supplier for support if this is not the case.



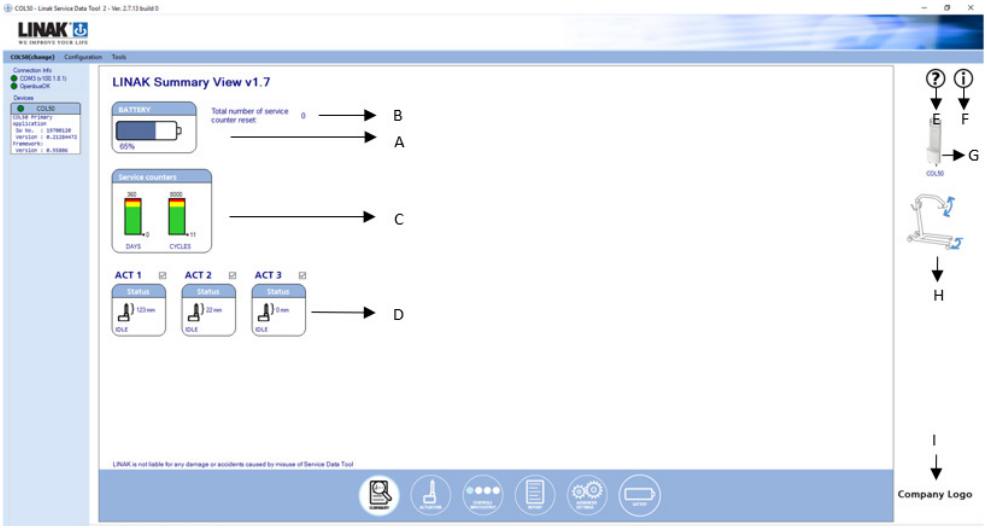
LIFT50 Service Data Tool sections

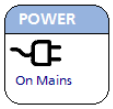
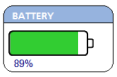
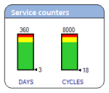
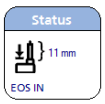
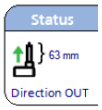
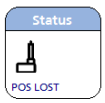
	Symbol	Explanation
A		For quick and easy overview of actuators info, service counters and battery state. Please notice: A new actuator connected is only visible in the Service Data Tool view if it has been running in outward or inward direction – A*S>0.
B		For detailed information about the actuators' statistical service data. For refreshing data from the control unit connected. For update of information when replacing the actuator.
C		For detailed information about hand control signals and codes.
D		For service reporting, production number, software number, item number of the application. Saving complete and relevant information for actuators data and service.
E		Intended for trained and authorised service technicians only. For update of actuator info if the control is replaced to maintain service data. For update of service settings and cutoff limit settings.
F		For information about battery life, charging state and use.
G	Status bar	Status is either IDLE or Reading Extended OpenBus device 8 register 20 It means that SDT is reading data – please wait.

Sections are updated every second to keep data updated. Please re-start SDT if the control box has powered down or disconnected. For further help and recommendations on each section, please press the help icon ⓘ

Please re-start Service Data Tool if hardware has been exhanged or dismounted during monitoring.

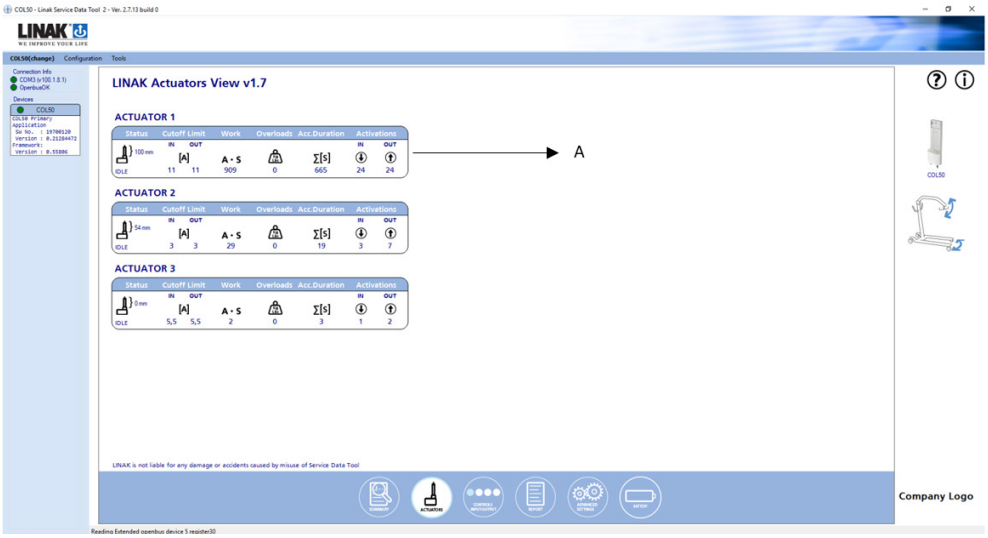
Summary view



	Symbol	Explanation
A		This symbol indicates that COL50 is connected to mains power and the current battery status.
		This symbol indicates that COL50 is operating on a BAL50 Lithium Ion battery.
B	Total number of service counter reset: 0	Amount of service counters re-set in total during application lifetime.
C		Graphical overview of actual service counter setting and state. Service counter is shown in either days or cycles. One cycle is defined as: 5 sec. outwards, 2 sec. inwards operation and current consumption > 2 A. Service counter state is indicated by colours. when service counter settings are getting expired, indicator moves into yellow and red area.
D		Selected or de-selected the actuators you want to monitor
		The actuator position is shown with numbers.
		The green arrow indicates that the actuator is working and shows which direction, which is also written. Status can be; Direction In, Direction Out, EOS in, EOS out or IDLE
		If the actuator has lost its position, POS LOST indicator will occur in the status bar
E		Help manual of what the different functions means.
F		The customer can add their own information as PDF-file.

G		A picture of the control box
H		The customer can change the application picture.
I	Company logo	The customer can add their own LOGO.

Actuator view



Example given with a 3-actuator system

	Symbol	Explanation
A	Cutoff Limit IN OUT [A] 3 3	To ensure that the application will stop if the current draw exceeds the preset limits. These values are factory default setting.
	Work A • S 21	Total work on the actuator (A*S): Work indicator for the actuators measures via ampere usage *seconds in use. The work indicator gives a very good indication of how much the actuator is worn. LA20: 10.000 cycles in life test equals: 1.300.000 A*S LA23: 10.000 cycles in life test equals: 1.400.000 A*S LA27: 10.000 cycles in life test equals: 3.700.000 A*S LA31: 10.000 cycles in life test equals: 3.000.000 A*S LA34: 10.000 cycles in life test equals: 4.300.000 A*S LA43: 10.000 cycles in life test equals: 2.500.000 A*S LA40: 10.000 cycles in life test equals: 3.800.000 A*S (LA40 6000N) LA40: 10.000 cycles in life test equals: 4.400.000 A*S (LA40 PL 8000N) LA40: 10.000 cycles in life test equals: 2.900.000 A*S (LA40 HP 8000N) LA44: 10.000 cycles in life test equals: 5.000.000 A*S BL1 : 10.000 cycles in life test equals: 2.200.000 A*S LC3 : 10.000 cycles in life test equals: 6.400.000 A*S The work indicator on each actuator can be reset by pressing
	Overloads 0	Total number of overloads reached inwards and outwards. If more actuators are moving at the same time during an overload situation the overload figure will be counting on all running actuators

	Symbol	Explanation
	Acc.Duration ∑[s] 85	Accumulated activity duration time in seconds.
	IN 8	Read out how many times a control button has been activated inwards
	OUT 7	Read out how many times a control button has been activated outwards

How to conclude on the service information

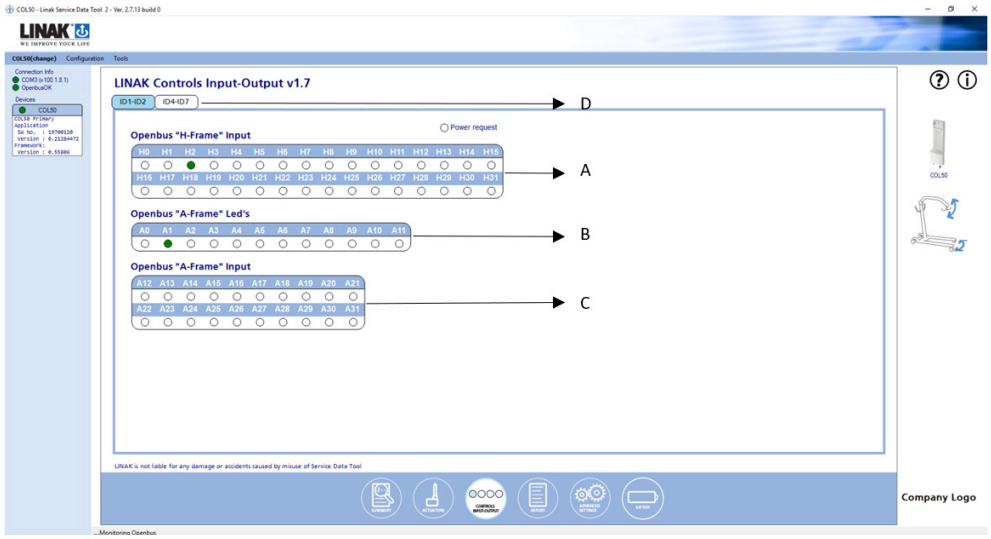
Total work:

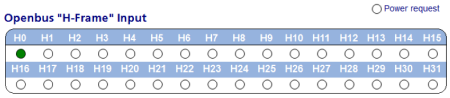
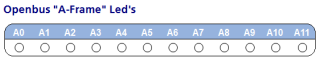
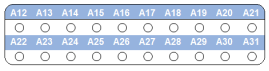
Please contact the manufacturer of the bed application or medical application e.g. couch / table or chair for treatment and examination. The manufacturer will decide when it is appropriate to consider exchanging the actuator.

Overload:

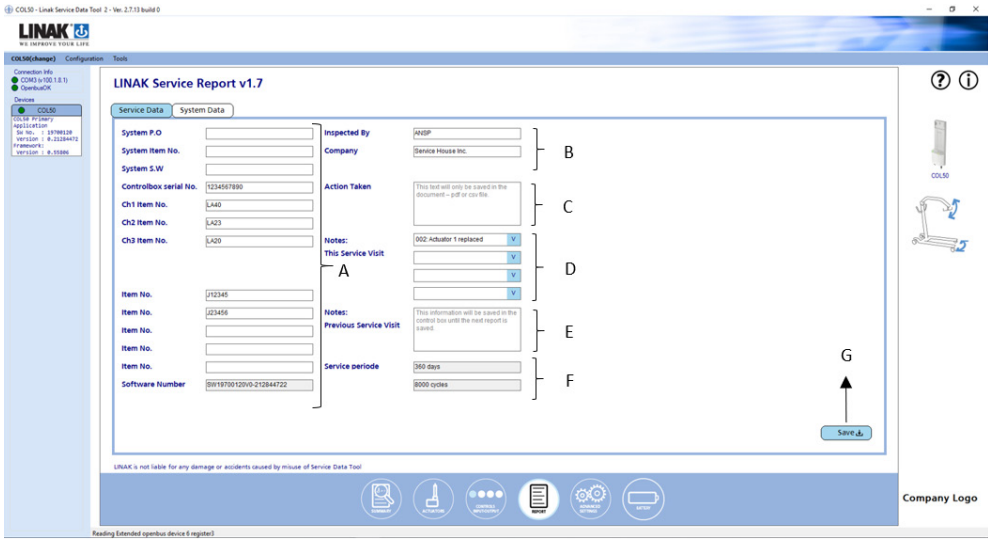
If overload has occurred it is recommended to consider stronger lifting equipment with higher working load for the particular patient / institution.

COL50 Controls view



	Symbol	Explanation
A	Openbus “H-Frame” Input 	OpenBus Signals
B	Openbus “A-Frame” Leds 	OpenBus Diode Signals
C	Openbus “A-Frame” Input 	OpenBus Button Signals
D	ID4-ID7 Service (ID4) ExBits (ID5) Res (ID6)	Additional OpenBus Signals overview

COL50 Report view

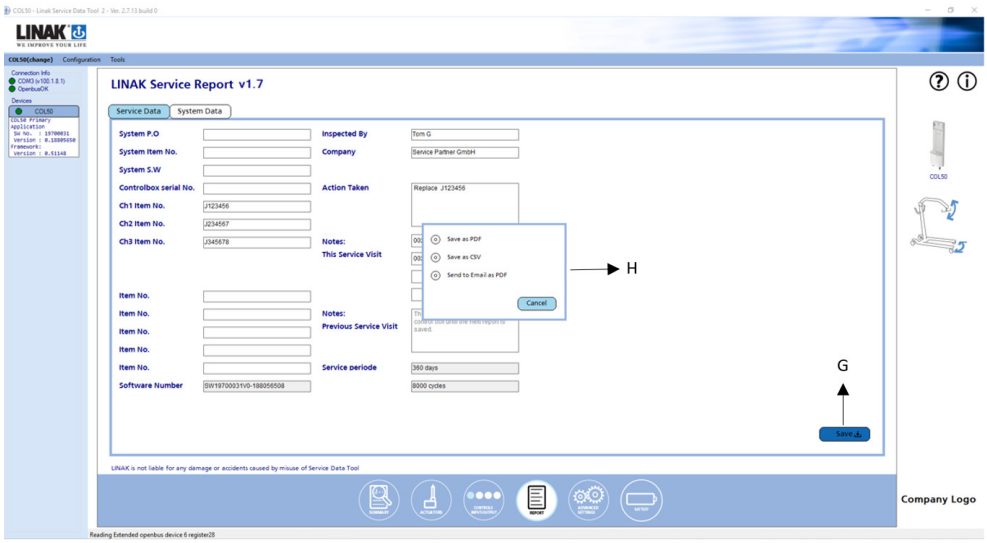


Example given with a 3-actuator system

	Symbol	Explanation
A	System P.O System Item No. System S.W Controlbox serial No. 1234567890 Ch1 Item No. LA40 Ch2 Item No. LA23 Ch3 Item No. LA20 Item No. J12345 Item No. J23456 Item No. Item No. Item No. Software Number SW19700120V0-212844722	Write the information which is on the label of the product.
B	Inspected By Service Technician Company Service Company XX	Fill in the information; Inspected by, Company
C	Action Taken This text will only be saved in the document – pdf or csv file.	Description made in this box will be read out when the report is saved.
D	Notes: This Service Visit 003: Actuator 2 replaced 007: Battery replaced	Choose up to 4 notes after the service visit. Messages for the next service visit - will be stored and readable at next visit. Saving is confirmed. Service code has been saved successfully to the control box. OK

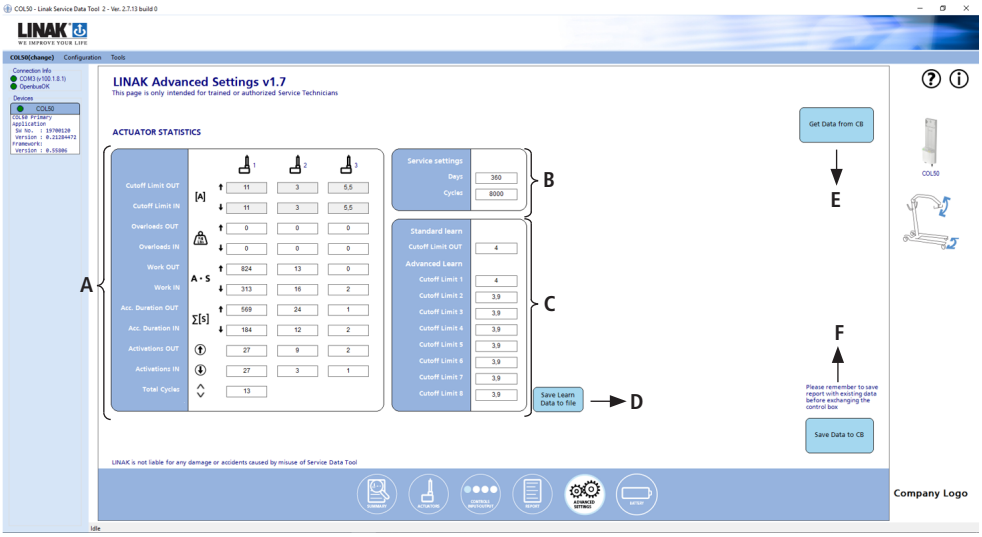
	Symbol	Explanation
E		Up to 4 notes readable from the previous service visit.
F		Defined service periode in days and cycles. One cycle is defined as: 5 sec. outwards and 2 sec. inwards operation. Service counter state is indicated by colours. When service counter settings are getting expired, indicator moves into yellow and red area.

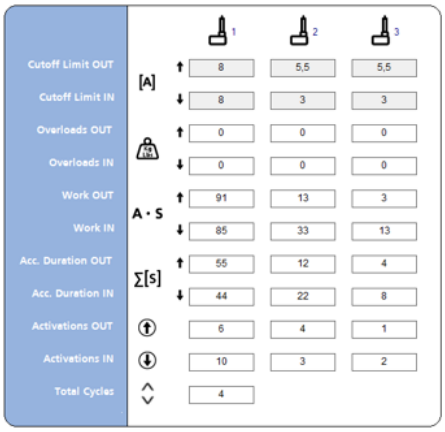
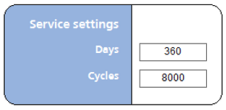
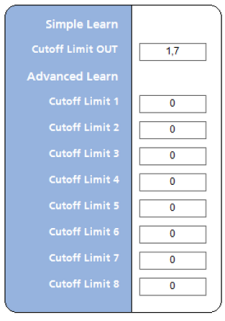
Example given with a 3-actuator system

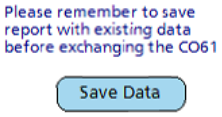


	Symbol	Explanation
G	Save	When the application has been checked and the information completed, press "***save***" to save as PDF, CSV, send to Email. Relevant actuator statistics and system data will be included in the report. Please notice that outlook has to be available. Outlook will open automatically when report download is started. If the COL50 is connected to BAL50 battery - all battery data will be saved.
H	Save as PDF Save as CSV Send to e-mail as PDF Cancel	

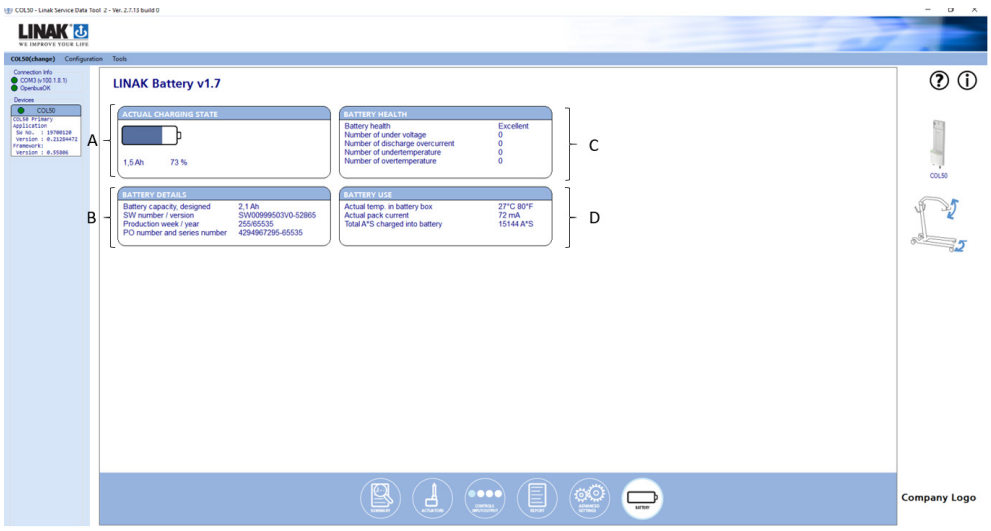
COL50 Advanced settings

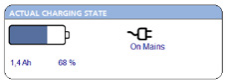
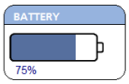


	Symbol	Explanation
A		Remember to update actuator info if the COL50 is replaced. In this way you maintain the statistical service data information on the actuators. Cutoff Out and Cutoff In values are default factory settings for current Cutoff limits. Valid for CH1 in case of O-values in learn mode fields.
B		Service interval current settings for this Lift system. When entering new data, the data will be visible in bold script. Press save data to control box to update.
C		CH1 current cutoff limit settings for this lift system. Data can either be a result of manual entries or be created via learn mode function on your handset. Press save after learn. If learn mode is mandatory for operation, values are to be filled. Actuators with feedback required for Advanced Lean.

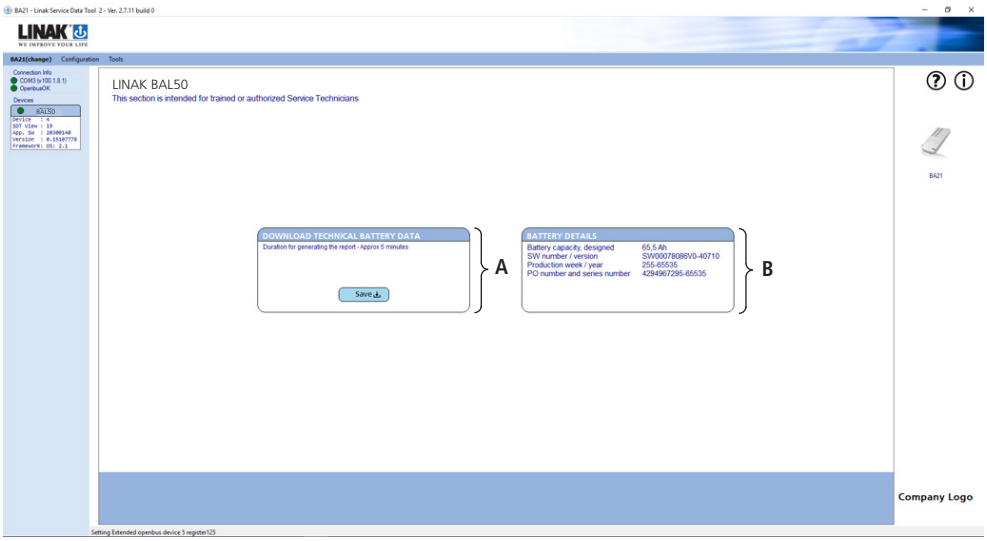
	Symbol	Explanation
D		Export function to upload learn mode values into software configurator. The file will be save to PC desktop. File to be send to LINAK representativ for general settings.
E		Get/Retrieve data from CB: When entering new data the data will be visible with bold script. "Get Data from CB" undo changes and retrieve existing data from the control box.
F		Remember to save report with existing data before exchanging the Control box. Save new settings: This will reset the above information with the new data filled in.

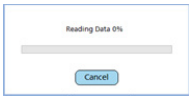
COL50 Battery View



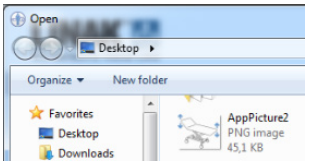
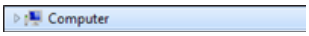
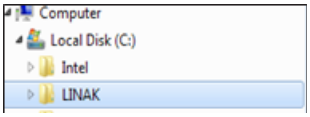
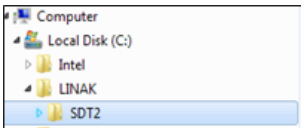
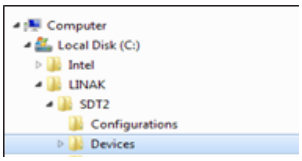
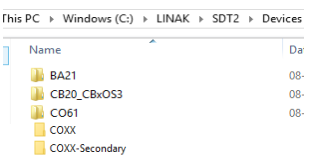
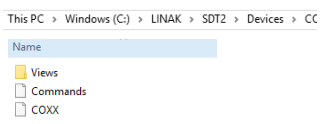
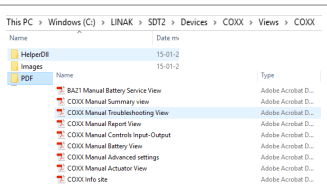
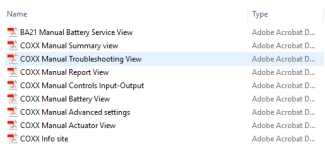
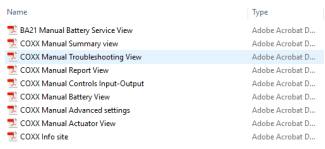
	Symbol	Explanation
A		This symbol indicates that COL50 is connected to mains power and the current battery status.
		Battery Status is indicated by % and Ah. If battery capacity is less than 2 cycles the COL50 will hoot.
B	Battery details	Automatically read-out of the battery details for easy identification of the battery
C	Battery health	The use of the battery affects the battery health and the number of incidents of the following can also help explaining the battery health and the length of the battery life. These statistical data are also userful for service evaluation.
D	Battery Use	This section indicates the use of the battery. The work indicator for the battery measures via ampere usage *seconds in use. The work indicator gives a very good indication of how much the battery is worn. These statistical data are also useful for service evaluation. For BAL50 battery 500 full charging /decharging cycles is approx. 3.510.000 A x S. However, this is only a rough guideline as a lot of factors will affect the Lift battery life time e.g. how the battery is used and charged. See the Battery Section for further details.

BAL50 Battery Service View



	Symbol	Explanation
	Please notice that outlook has to be available. Outlook will open automatically when report download is started.	
A	Save	Press "save" to download a battery log file as CSV and send to Email. The Battery details and relevant Battery statistics will be included in the report. These data are useful for further technical analysis of the battery.  Download status indication. 
B	Battery details	Automatically read-out of the battery details for easy identification of the battery

How to change the application picture, company logo and information PDF-file

	Symbol	Explanation
		Click on the application picture or company logo with the right mouse button to select another picture or logo. Please use the file type JPEG or PNG.
		Choose the application picture from your desktop. The size of the new application picture or company logo should be: Application picture: Width 138 pixels, Height 112 pixels Company logo: Width 150 pixels, Height 18 pixels
1		To change the pdf files: help or info – ⓘ Open Computer
2		Open the drive including “LINAK”
3		Open SDT2
4		Open Devices
5		Open the software-map for COL50
6		Click on views, COL50
7		Click on PDF to change a pdf file in one of the sections or to add an info file
8		Rename the existing pdf file. For example from “Info site” to “OLD” Remember to save or write the name you just have changed. In this example you have to remember “Info site”
9		Copy the file you want to add to the folder and rename the new pdf with the name of the pdf you want to replace. If we take the example from point 8, you have to change it to “Info site”

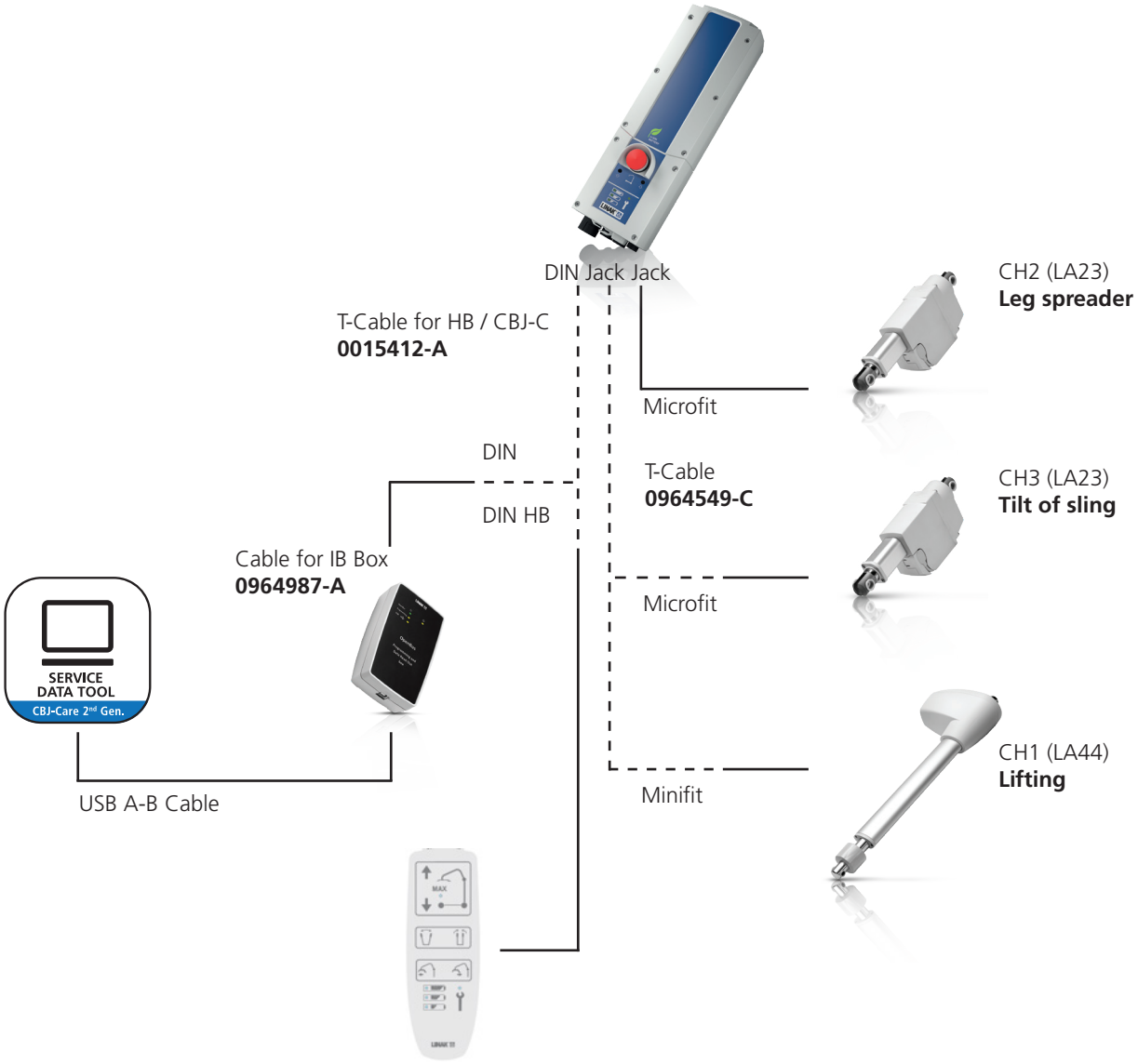
SDT2 for JUMBO Care systems

System overview for JUMBO Care

The LINAK IB3 tool (the SDT "box") can also be used for service data read-out from the JUMBO Care control box with a DIN connection. Below is a diagram of how this IB3 tool is connected to a standard LIFT50 system via a Modular Junction Box (MJB).

While it is also possible to connect the DIN connector directly to the CO control box, it is advisable to do so using the T-cable (0015412-A) so that other components can still be connected and ready to send commands, both to wake up the system for the SDT2 program, but also to run the system for troubleshooting purposes.

Service Data Tool and JUMBO Care 2nd generation, 3 channel solution:



Information

Please note that the Service Data Tool version 2.5.0 or newer is needed. The JUMBO Care article number should begin with CBJxxxxxxxxxxxx.

Please remember to order cables and the IB300001 box for data read-out from JUMBO Care to laptop.

The T-Cable 0015412-A is needed if you do not have an activation button on the JUMBO Care control box.

Article number	Product
IB300001	Box for data read out from JUMBO Care to laptop
0964987-A	Cable for usage of Service Data Tool (from JUMBO Care to IB300001 box)
0015412-A	T-Cable for usage of hand control and Service Data Tool. (from JUMBO Care to hand control and IB300001 box)
0964549-C	T-Cable, Stereo Jack for CH1 to enable 3 channel solution

Service intervals

What is the service interval presetting?

A standard JUMBO Care control box will be pre-set with a service interval of: 12 months / 8000 cycles, whichever comes first.

How do I see on the control box that it is time for service?

The notice about service need depends upon the JUMBO Care version:

- No indicators on the front cover: one single beep telling that it is time for service
- Diodes on the front cover: The service diode will light up and one single beep will tell that it is time for service
- Display: The display will show the service symbol and one single beep will tell that it is time for service.

When does the service time start counting?

The service time will start to count down from the day the control box is produced.

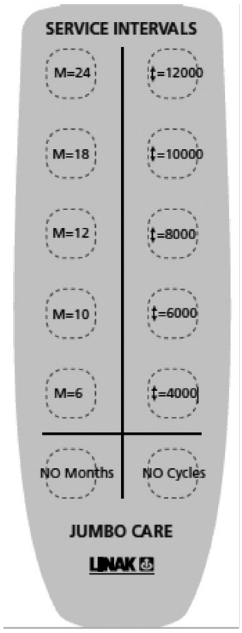
How to change to another service interval?

The service interval can be changed via a special LINAK handset (Item number HB8646V2010 + 71). To change the service interval you simply plug in the handset in the JUMBO Care and press the button. You can choose from a number of months or cycles between services. You can also choose 'NO months' or 'NO cycles´.

E.g. Push M = 24, Push ↕ 10000.

The JUMBO Care is now set to indicate service need every 24 month or at 10000 cycles, whichever comes first.

After having set a different service interval, the control box will provide an audio sound (as a receipt).



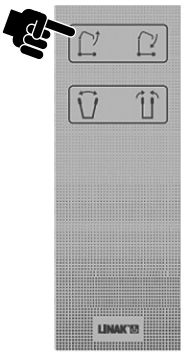
Read out service data on a JUMBO Care with display

When you have a JUMBO Care with display, it is possible to have some basic service data on the display. To get this information on the display, press the “lifting arm up” button on your LINAK hand control or control box (short press ½ second).

The information that appears on the display is;

CBJ Care read out service data

HB80



HB70

→ Total cycles made by the lifting actuator (channel 1)

→ Total work made by the lifting actuator (channel 1)

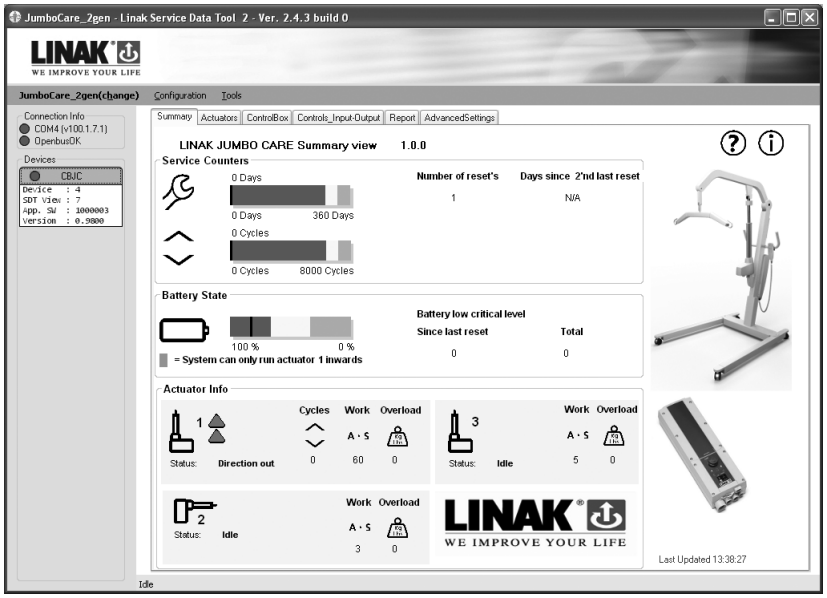
→ Total number of overloads (channel 1)

→ Days since last service/days between services

Reading out service data on a PC

Ensure that the JUMBO Care view is initiated by pressing the menu shown.

Please contact your local LINAK supplier for support if this is not the case.



Information

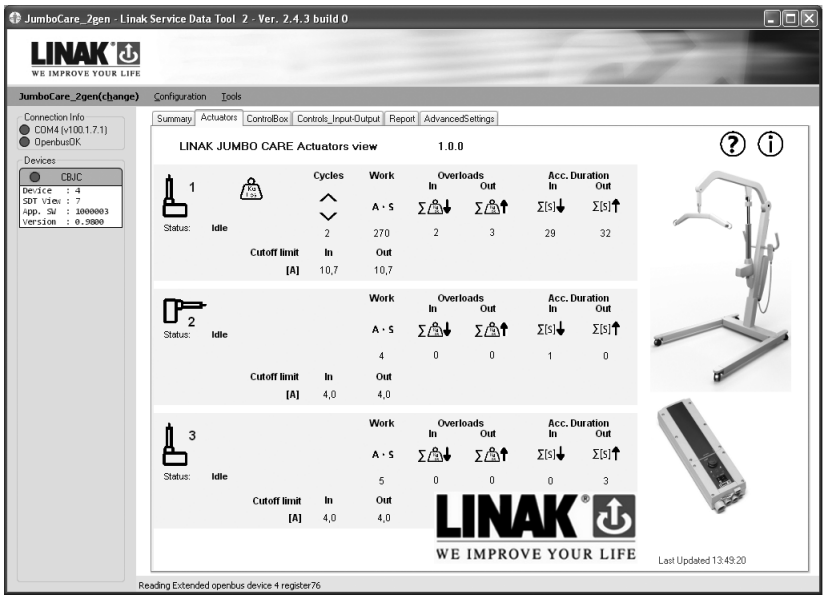
Please note that the "Jumbo Care_2gen" view is now simply called "JumboCare" for both 1st and 2nd generation as of SDT2 ver. 3 and above. If you need this view, please contact your local LINAK subsidiary.

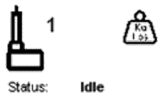
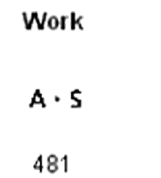
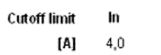
The Service Data Tool for Jumbo Care is divided into sections:

Section	Used for…..
Summary	For quick and easy overview of service indicator, battery status and actuator statistics
Actuators	For detailed information about the actuators' statistical service data
Control box	For detailed information about the control box and battery state
Controls_InputOutput	For detailed information about hand control signals and codes
Report	For service reporting and resetting of service counters via hand control after saving report
Advanced settings	**Intended for trained and authorised service technicians only.** For change of service settings and update of actuator info if the control box is replaced to maintain service data. For update of information when replacing the actuator

For further help and recommendations on each section, please press the help icon or see next page.

Actuator view



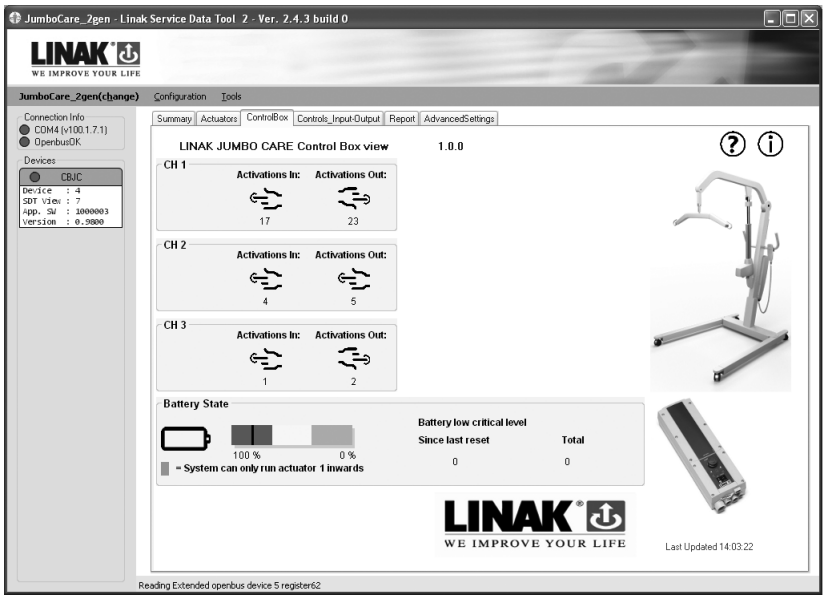
Symbol	Service data description and recommendations
	**If the overload symbol is shown next to the actuator there is currently an overload situation.** Reduce the load on the actuator. If a buffer actuator is used, the amount of overloads is an expression of how many times the actuator has run into end-stop and been overloaded.
 Shown in the summary section	**Total overloads CH1:** Counts the number of times the actuator on channel 1 has been overloaded. If the actuator has been overloaded, we recommend lifting equipment with higher load capacity. The indicator can only be reset by exchanging the actuator through Service Data Tool "actuator" menu. Channels 2 and 3: If a buffer actuator is used, the amount of overloads is an expression of how many times the actuator has run into end-stop and been overloaded
	**Total work CH1 (A*S):** Work indicator for the actuator on channel 1 measures via ampere usage * seconds in use. The work indicator gives a very good indication of how worn the actuator is. Typical minimum lifetime performance without abuse of the actuator LA23: 10.000 cycles in life test equals: 1.500.000 A*S LA31: 10.000 cycles in life test equals: 2.900.000 A*S LA34: 10.000 cycles in life test equals: 4.200.000 A*S LA43: 10.000 cycles in life test equals: 3.750.000 A*S LA44: 10.000 cycles in life test equals: 5.600.000 A*S The indicator can only be reset by exchanging the actuator through Service Data Tool "Advanced Settings" menu. Please contact the lift manufacturer in order to decide when it is appropriate to consider exchanging the actuator.
	**Total cycles:** The total number of cycles made by the actuator on channel 1. One cycle is defined as; Driving with load (the actuator draws more than 1.5 Amps). Driving direction up for a minimum of 5 seconds (several activations are allowed), followed by driving down for a minimum of 2 seconds. The indicator can only be reset by exchanging the actuator through Service Data Tool "Advanced Settings" menu or by pressing the up and down button on channel 1 for 5 seconds.
	**Cut-off limit:** To ensure that the lift will stop if the current draw exceeds the preset limits. The best way to set the cut-off limit is via learn mode.

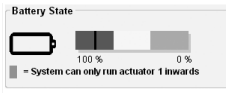
How to conclude on the service information

Total cycles and total work:
Please contact the lift manufacturer in order to decide when it is appropriate to consider exchanging the actuator.

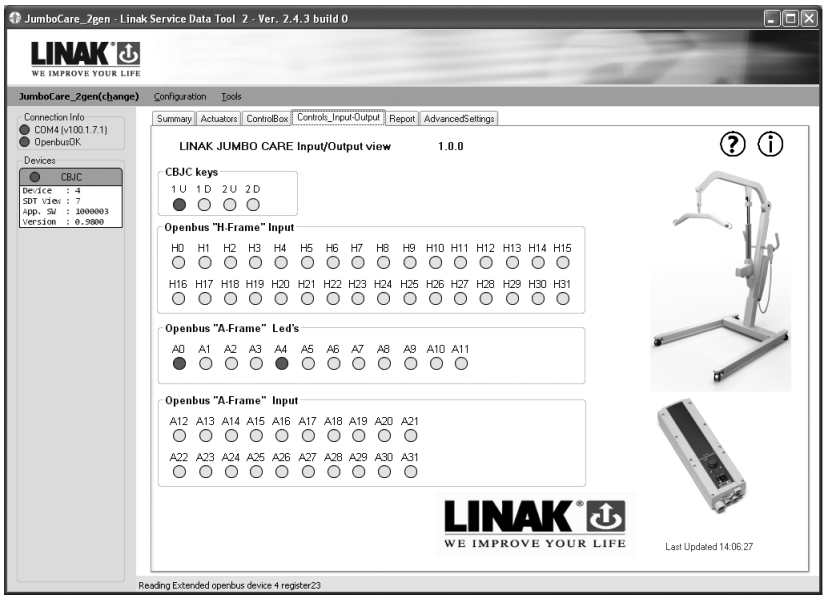
Overload:
If overload has occurred it is recommended to consider stronger lifting equipment with higher working load for the particular patients/institution.

Control box view

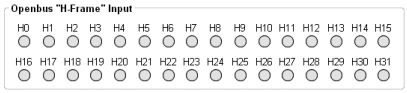


Symbol	Data description and recommendations
	Read out how many times a hand control button or the button on the control box has been activated on CH1.
	**Battery state:** Green; battery fully charged (approx. 100-50% capacity remaining) Yellow; battery approx. half charged (approx. 50-25% capacity remaining) Orange; Battery empty (incl. audio signal when the hand control is activated). Limited actuator function. Good battery behaviour is charging the battery at all times when it is not in use. Deep discharging of the battery can cause damage of the battery.
	**Since last reset:** Number of times the control box has detected a critical battery level. If batteries are switched between lifts, it does not say anything about the battery condition. It is only an indication of the battery behaviour. The "Battery low critical level" counter will be reset after each service reset, but it will be saved if making a report. Total Number of times the control box has detected a critical battery level. If batteries are switched between lifts, it does not say anything about the battery condition. It is only an indication of the battery behaviour. The number of critical battery levels will not be valid if the emergency stop button is used as an on/off power button and not for emergency situations only.

Controls view

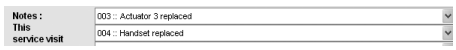


If a diode (or hand control button) is activated, one of the coded buttons will light up as the example above shows.

Codes	Code explanation
	Up and down buttons on the CBJC control box. HB40 like signals
	OpenBus signals
	OpenBus Diode signals
	OpenBus button signals

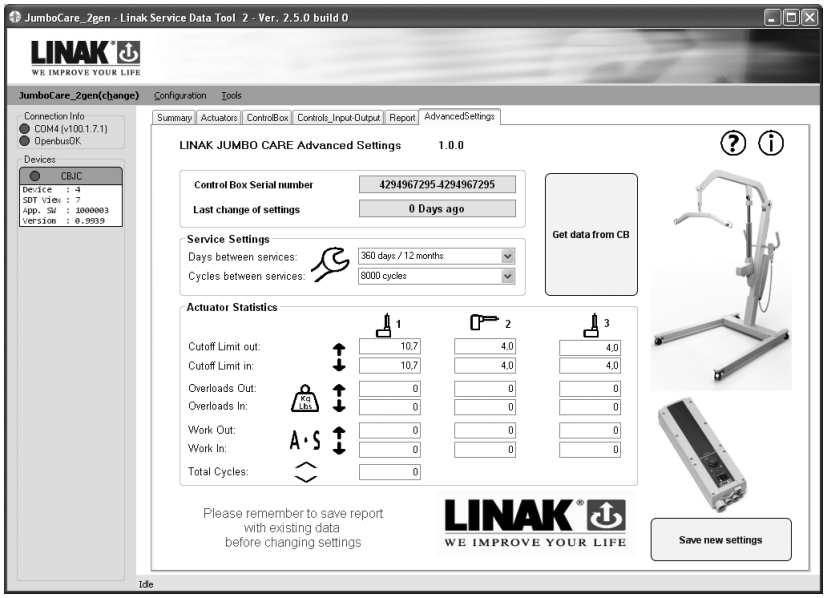
Report view

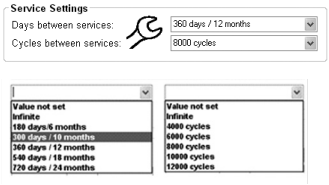
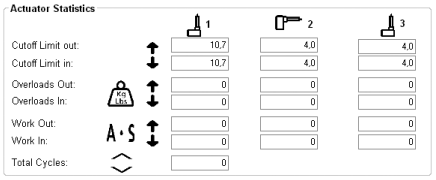
After each service visit it is recommended to fill in the service report and press "save" to maintain service data.

Data	Recommended procedure and explanation
	These data are filled in automatically.
	Fill in these data.
	Description made in this box will be read out when the report is saved.
	Choose up to 4 notes after the service visit. Messages for the next service visit - will be stored and readable at the next visit.
	Up to 4 notes readable from the previous service visit
	Check the lift extra well on the marked spots. Action is recommended in case of noteworthy observations.
 	When the lift has been checked and the information completed, press "save" to save as html or a comma separated file. Relevant actuator statistics and system data will be included in the report.
	Resetting the service counters: - Days since last service - Cycles since last service Resetting of service is made by pressing 2 buttons on the hand control or the control box at the same time for 5 seconds. The reset buttons are predefined as lifting arm up and lifting arm down. An audio signal will indicate that the timer has been reset.

Advanced settings view

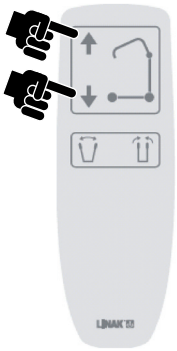
Please note! This section is only intended for trained and authorised service technicians



Data	Recommended procedure and explanation
	Control box serial number: This number is unique and can be found on the label of the control box. It will be updated automatically if the control box is replaced and cannot be changed. Last change of settings: The date of the last programming is shown and cannot be changed, it will be reset when pressing "Save new settings". It will also be reset when service settings are changed via the special LINAK HB.
	Service settings: The settings are automatically shown, but they can be changed via the drop-down menu. It is also possible to insert days and cycles in service settings which are not available on the drop down list. Only requirement is – the setting of days must be dividable with 30 to calculate the months.
	Actuator info: Remember to update actuator info if the control box is exchanged. In this way you maintain the statistical service data information on the actuators. Remember to update "cut-off limit out" and "cut-off limit in" and all other figures if an actuator is replaced.
	Get / retrieve data from the control box: When entering new data, the data will be visible with bold script. "Get data from CB" undo changes and retrieve existing data from the control box.
	Remember to save report with existing data before changing settings Save new settings: This will reset the above information with the new data filled in.

Resetting of service interval after service has been carried out

Resetting of service is done by pressing 2 buttons (lifting arm up and lifting arm down on the hand control or on the control box at the same time for 5 seconds. (Buttons that need to be pressed might differ depending on hand control type or control box). After pressing the buttons for 5 seconds, you will receive an audio signal indicating that the timer has been reset. The timer will reset the diodes/clear the display for service symbol, and start counting a new service period.



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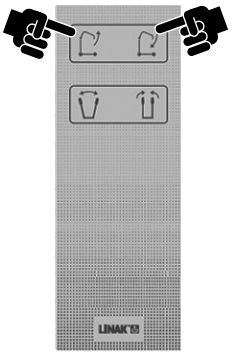

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Info site

The lift manufacturer can add one information site per section and it is accessible via the icon ⓘ

The information site may include further information e.g. service checklist for the service technician to follow, Lift guidance by lift type etc.

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