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Service Data Tool 2 for LINAK CO Control Box Platform, PJ2, Battery and CO-Link™ system

User manual

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Contents

Preface

Dear User,

We are delighted that you have chosen a product from LINAK®.

Your new CO Control Box Platform, hereafter named COXX, has a microprocessor inside making it possible to read out service data via the Service Data Tool. If it is connected to a battery, data can also be read out of the battery and the same goes for the external Port Junction box PJ2.

Finally, service data are also available for systems where two control boxes, type CO are connected – also called a CO-Link system.

In this manual you can read about how to use and get the full benefit of the service function in your COXX, battery, PJ2 and CO-Link system.

If no drivers are installed on your laptop, if you never have used service data tool on your laptop before, please contact your local sales representative to get access to the IB300001 user manual where this procedure is explained.

If you experience any problems with your new COXX, battery or PJ2 box, you are always welcome to contact your local LINAK representative who will be able to help you.

LINAK A/S

Before getting started with reading out service data on a laptop

Equipment needed to read out service data

When reading out service information on a laptop you need:

- Service data tool 2 version 2.7.9 or newer version installed on the laptop.
- 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

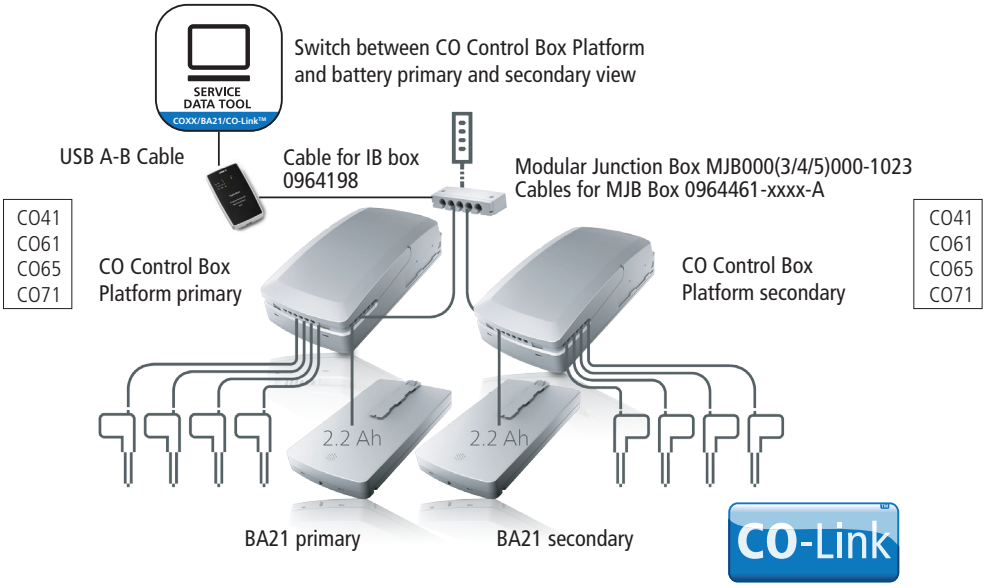
A) First, make sure that service data tool drivers and the Service Data Tool 2 software (version 2.7.9 or higher) is installed on your laptop.

If Service data tool drivers and the Service Data Tool software are not installed, please see the SDT2 user manual.

Connect the equipment as shown below

System example:

Service Data tool COXX, Battery and 8 channels solution:



Batteries supported in SDT	PCP 1.0	PCP 2.0
BA16		X
BA19		X
BA21	X	X

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

When connection is observed the red LED ("Supply 8V Missing") in the current laptop window changes to green.

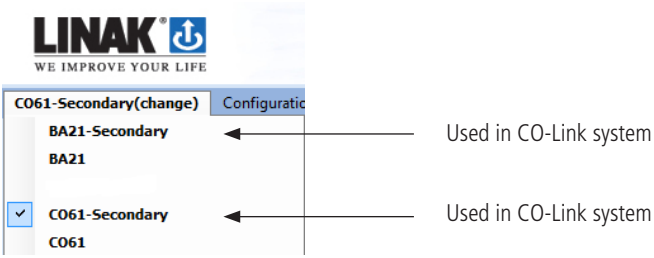
B) Wake the COXX (by pressing a button on the hand control or by pressing the foot switch).

C) Enter the Start menu on your laptop and choose the LINAK programme to open the Service Data Tool Linak SDT2

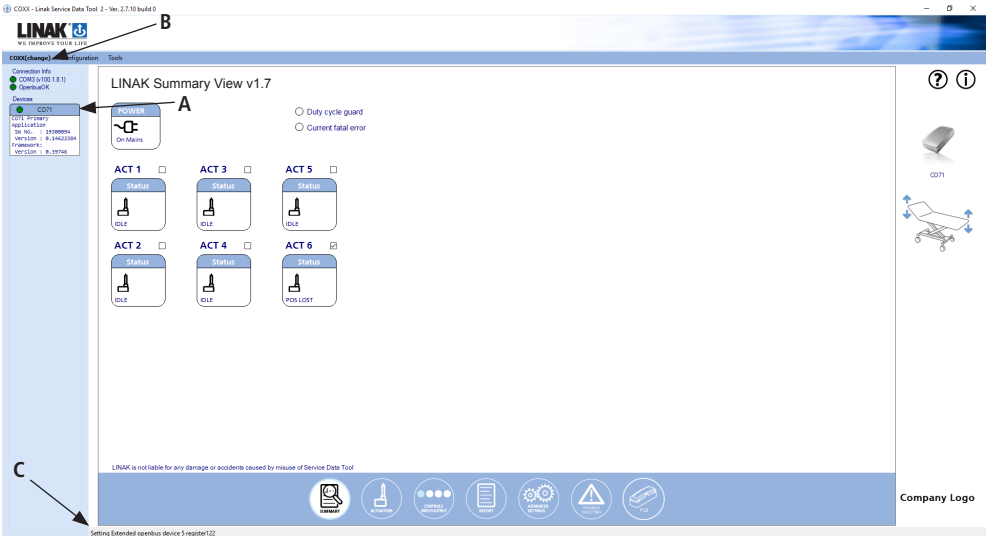
CO-Link system explanation

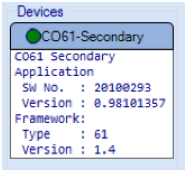
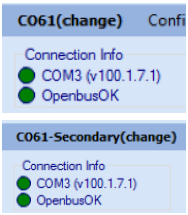
When Service Data Tool is opened there will be access to the versions below. COXX, BA16/BA19 and BA21 are the primary views. Secondary views are only used for CO-Link systems.

Example:



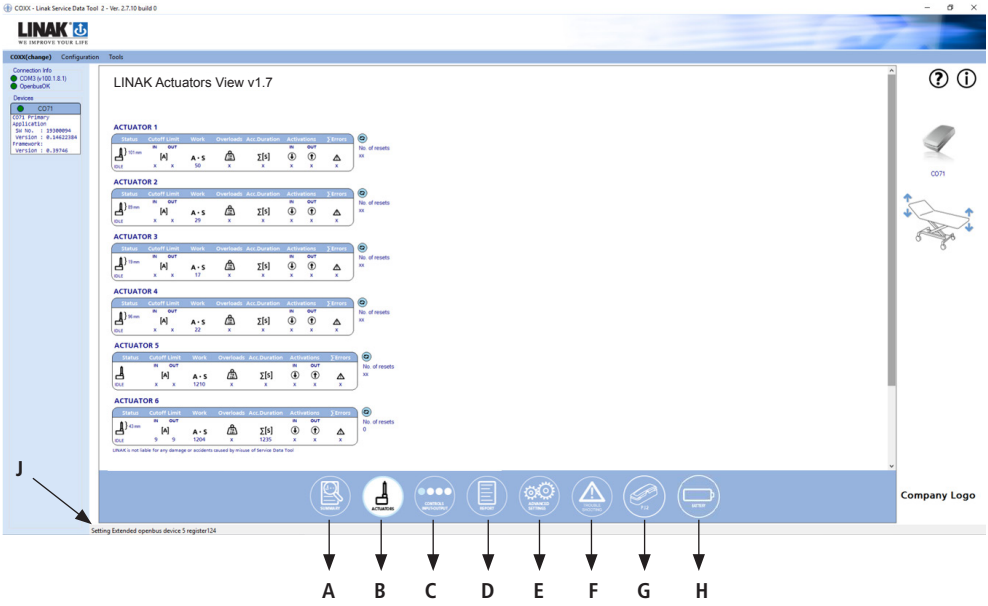
It is easy to identify the selected view by looking in the upper left corner – here it is the COXX primary view used for the CO-Link system.



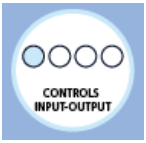
	Symbol	Explanation
A		CO-Link is used when two control boxes e.g. COXX are connected in a system with control of up to 8 movements / actuators. Look into the device information to see if the service data are read out from the COXX primary or secondary. The COXX primary and COXX secondary views have exact 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

Reading out service data on a laptop

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.



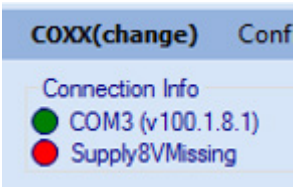
The Service data tool COXX Primary and COXX Secondary is split into sections

	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 ⓘ

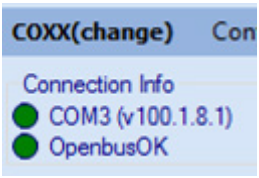
Indicates that the connection is working 100%

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



Connection to IB30 box OK

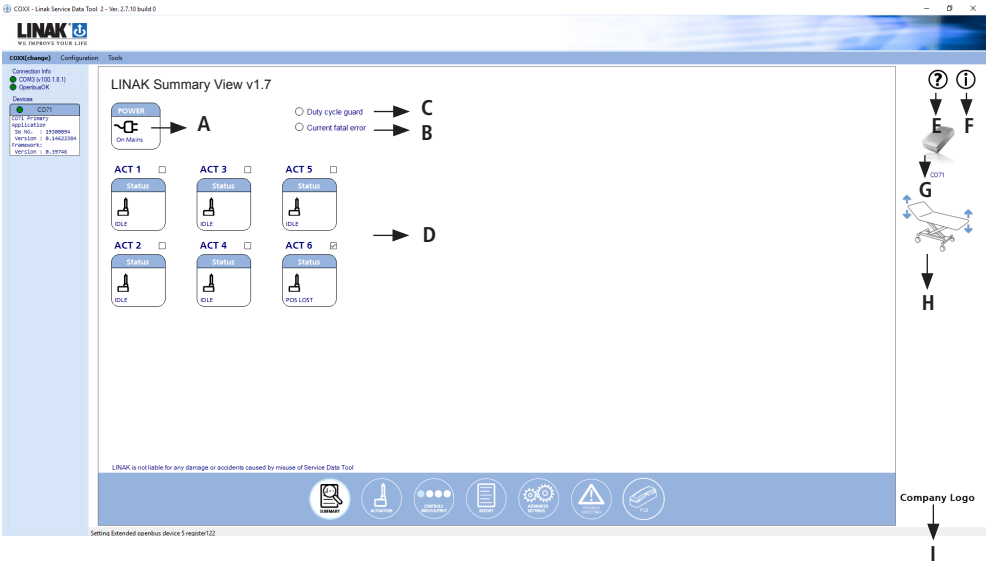
Control Box connected = 8V missing

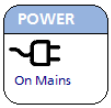
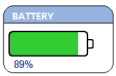
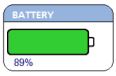


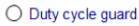
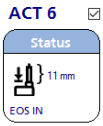
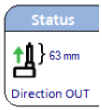
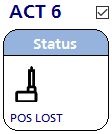
Com Port Connection SDT IB30 version

OpenBus Ok/Fail

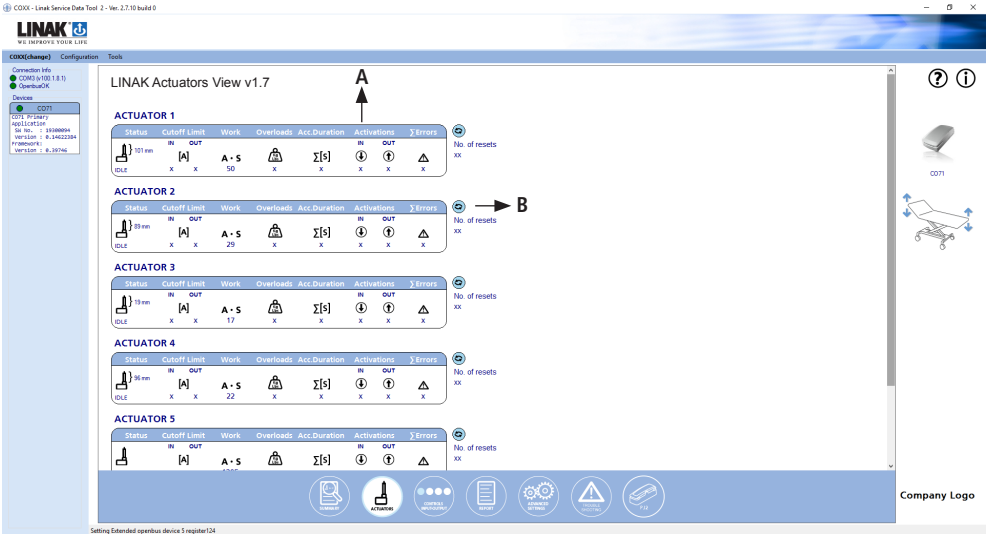
Service Data Tool help manual for CO Control Box Platform Summary view



	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.

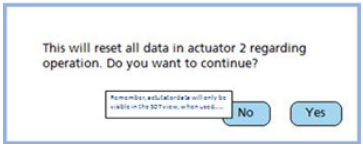
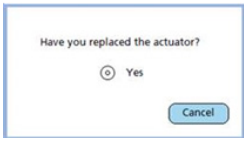
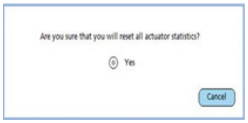
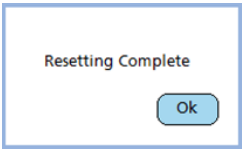
	Symbol	Explanation
B		If the LED is orange, it indicates that the COXX has stopped operating due to the duty cycle guard.
C		If the current fatal error LED is orange then you have fatal error and can use the troubleshooting section and button to for help.
D		Selected or de-selected the actuators you 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
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.

Service Data Tool help manual for CO Control Box Platform 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 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 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

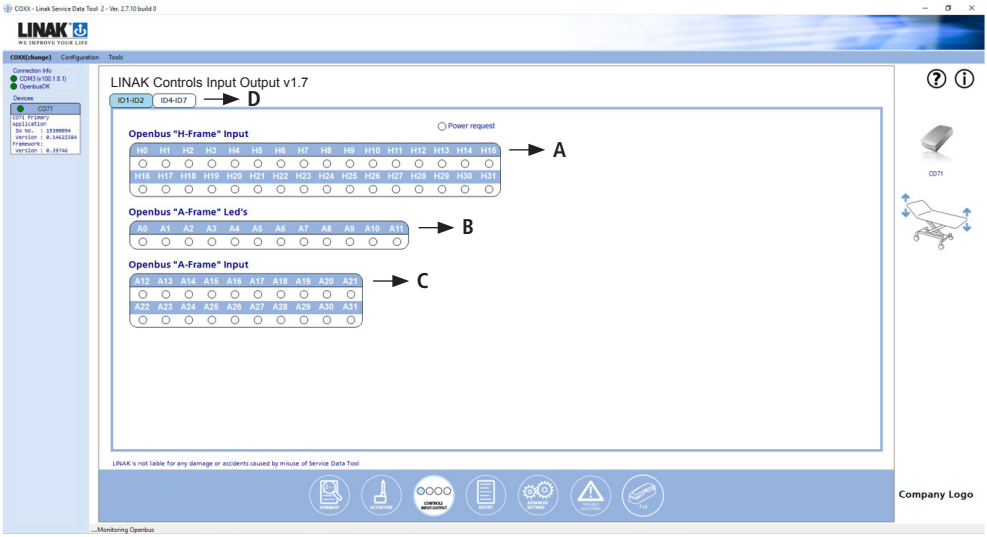
	Symbol	Explanation
	Acc.Duration Σ[s] 85	Accumulated activity duration time in seconds.
	IN 8	Read out how many times a control button has been activated inwards
	OUT 7	Read out how many times a control button has been activated outwards
	∑Errors 0	Numbers of errors per actuator. The indicator can only be reset by exchanging the actuator through SDT2 "Actuator" menu.
	No. of resets 0	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.

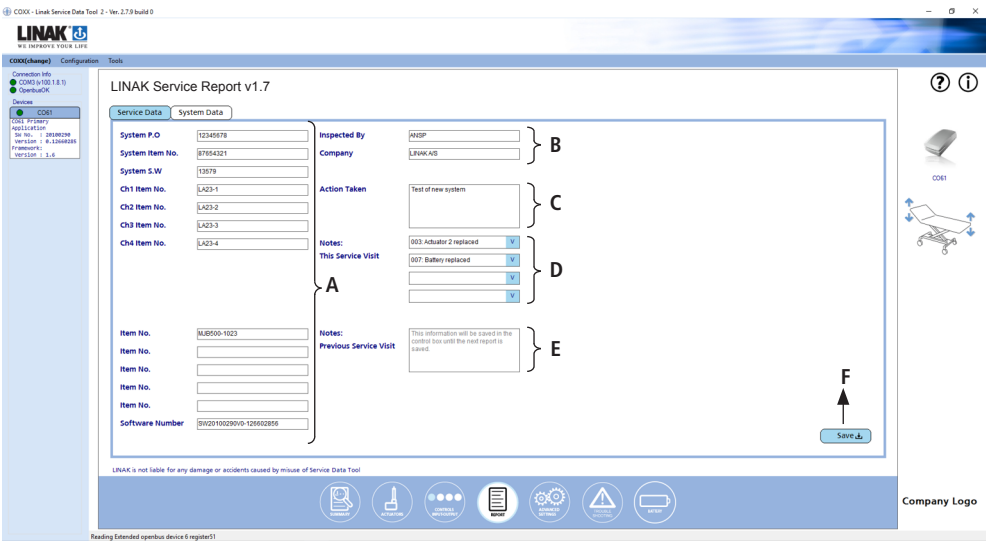
Overload:
If overload has occurred it is recommended to consider stronger lifting equipment with higher working load for the particular patient / institution.

Service Data Tool help manual for CO Control Box Platform Controls view



	Symbol	Explanation
A	**Openbus *"H-Frame"* Input** Openbus "H-Frame" Input Power request H0 H1 H2 H3 H4 H5 H6 H7 H8 H9 H10 H11 H12 H13 H14 H15 H16 H17 H18 H19 H20 H21 H22 H23 H24 H25 H26 H27 H28 H29 H30 H31	OpenBus Signals
B	**Openbus *"A-Frame"* Led's** Openbus "A-Frame" Led's A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11	OpenBus Diode Signals
C	**Openbus *"A-Frame"* Input** Openbus "A-Frame" Input A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26 A27 A28 A29 A30 A31	OpenBus Button Signals
D	**ID4-ID7** Service (ID4) ExBits (ID5) Res (ID6)	Additional OpenBus Signals overview

Service Data Tool help manual for CO Control Box Platform Report view

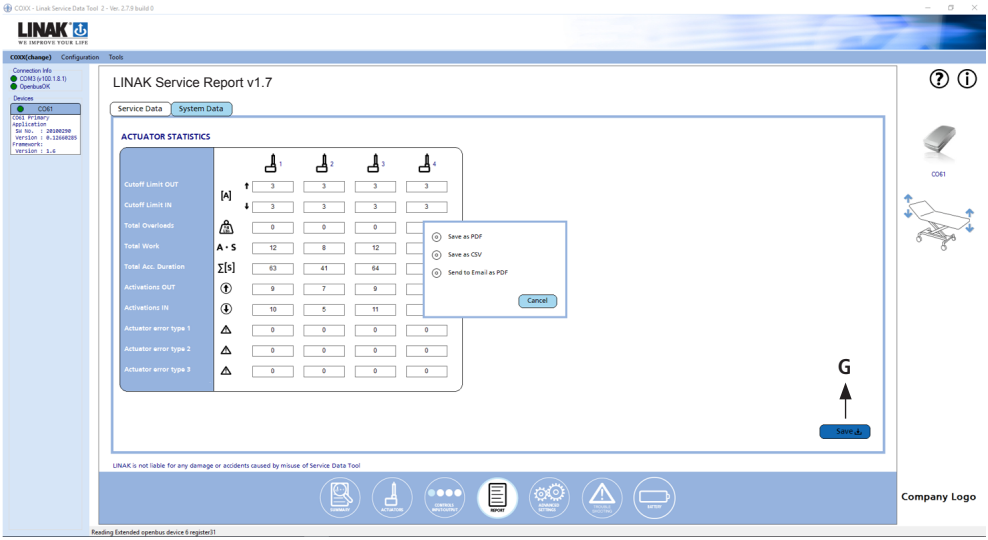


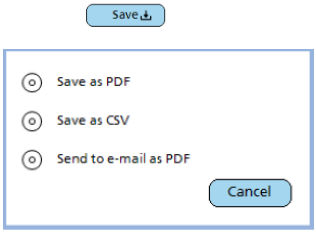
Example given with a 4-actuator system

	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.

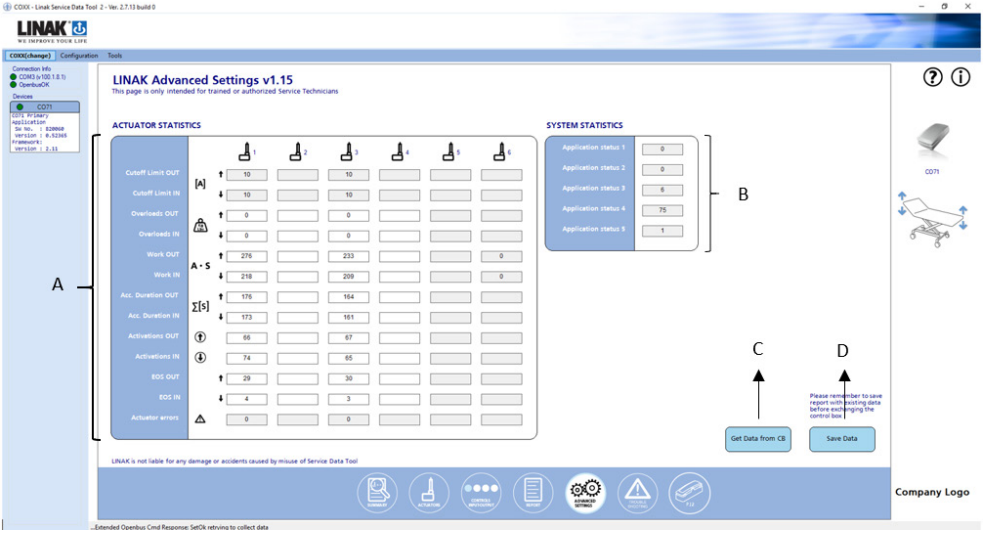
	Symbol	Explanation
B	Inspected By: Service Technician Company: Service Company XX	Fill in the information; Inspected by, Company
C	Action Taken: This text will only be saved in the document – pdf or csv file.	Description made in this box will be read out when the report is saved.
D	Notes: This Service 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

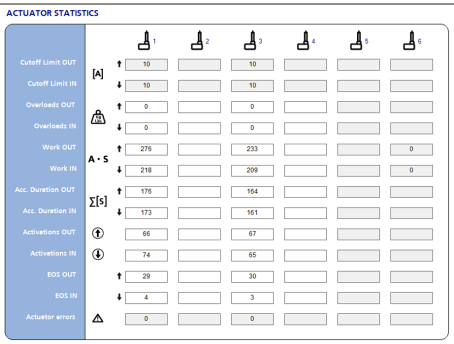
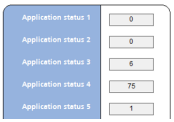
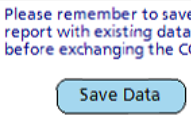


	Symbol	Explanation
F G		When the application has been checked and the information completed, press "save" to save as PDF, CSV, send to Email. Relevant actuator statistics and system data will be included in the report. Please notice that outlook has to be available. Outlook will open automatically when report download is started. If the COXX is connected to a Battery, Lithium Ion battery – all battery data will also be saved

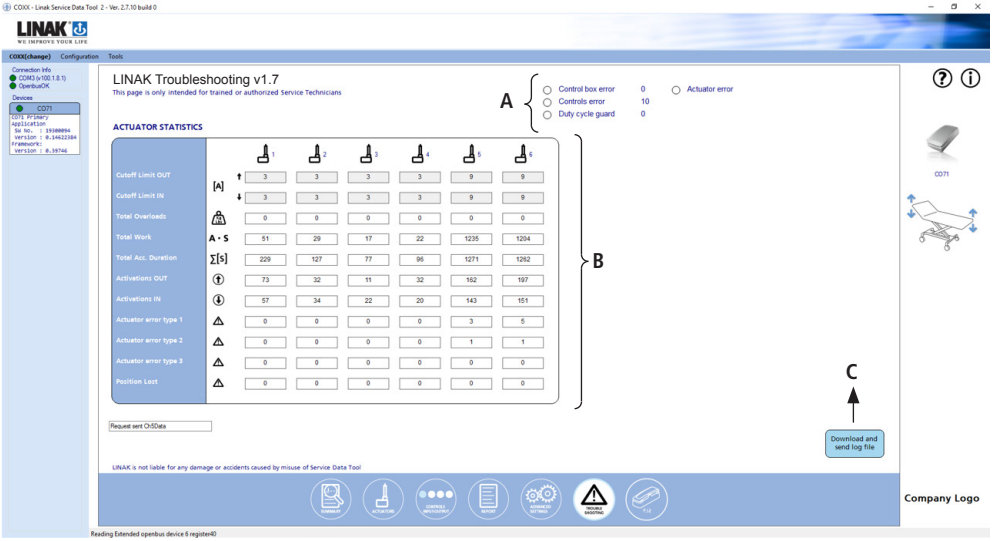
Service Data Tool help manual for CO Control Box Platform Advanced settings view



Example given with a 6-actuator system

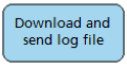
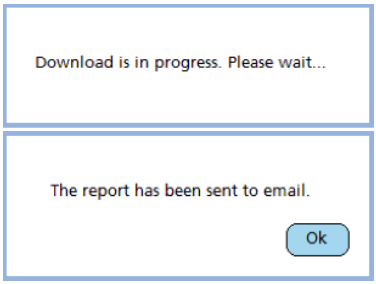
	Symbol	Explanation
A		Remember to update actuator info **if the COXX is replaced.** In this way you maintain the statistical service data information on the actuators.
B		Read out data related to unique customised functions
C		Get/Retrieve data from CB: When entering new data the data will be visible 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.

Service Data Tool help manual for CO Control Box Platform
Troubleshooting view

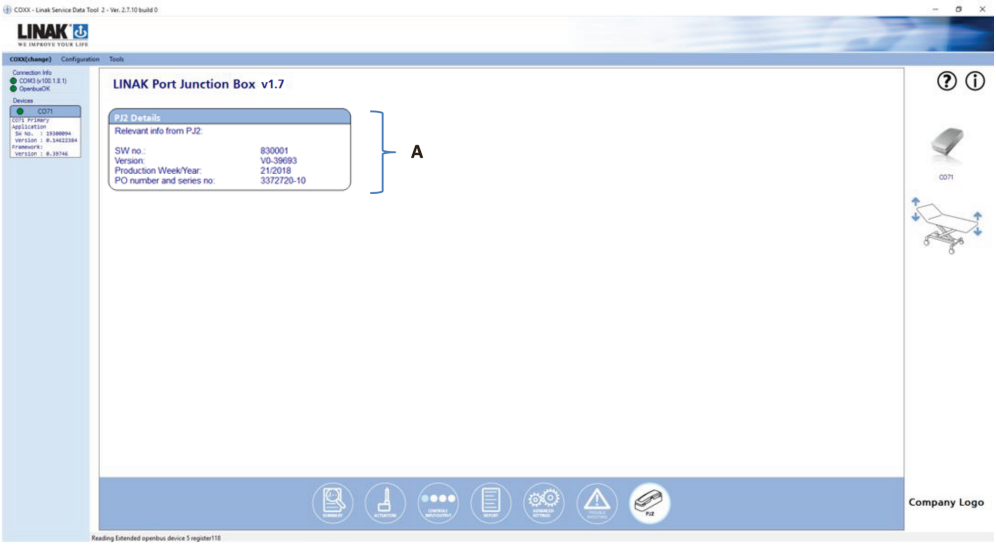


Example given with a 6-actuator system

	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

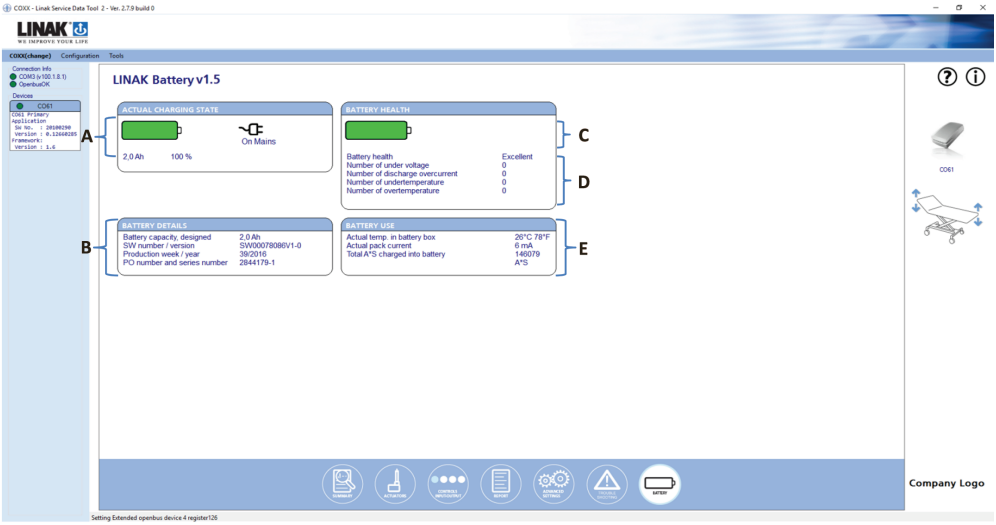
	Symbol	Explanation
C		Press this button to download and send a log file with all actuator statistics and troubleshooting data. The log file will be sent to your outlook for easy forward to your LINAK contact for further support.
		Please notice that outlook has to be available. Outlook will open automatically when report download is started. Status information and confirmation of successful download of Troubleshooting report will be shown.

Service Data Tool help manual for PJ2 Junction box view



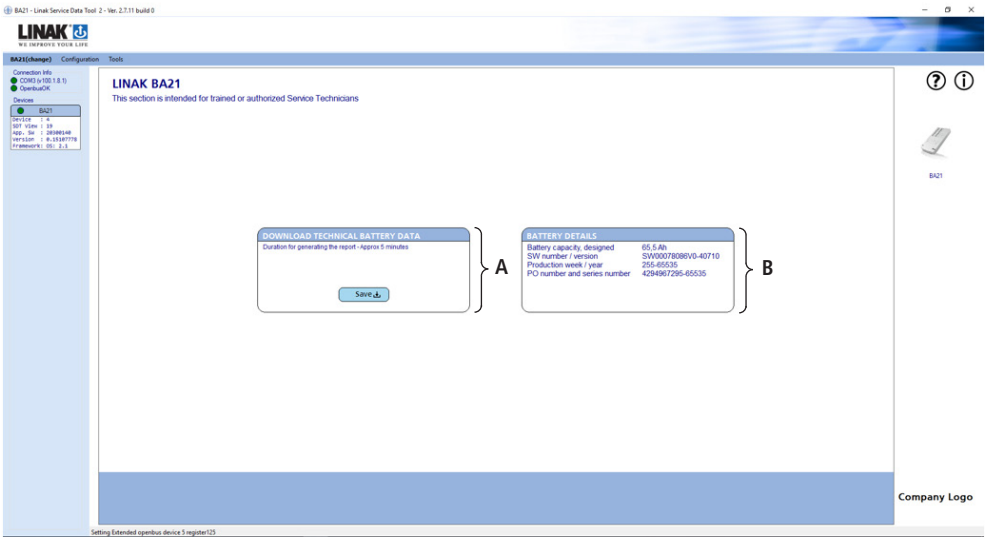
	SYMBOL	EXPLANATION
	Please notice! This section is only visible when PJ2 is connected to a LINAK COXX Control Box. Data are slowly updated	
A	PJ2 details	Automatically read-out of the PJ2 for easy identification

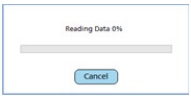
Service Data Tool help manual for Battery view



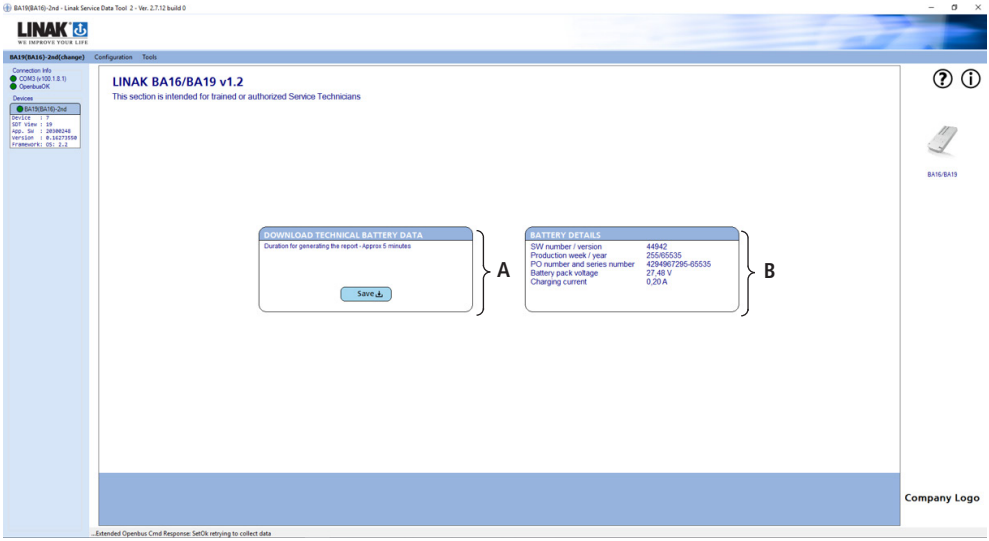
	SYMBOL	EXPLANATION
	Please notice! This section is only visible when COXX is connected to LINAK a battery.	
A		This symbol indicates that COXX is connected to mains power.
		This symbol indicates that COXX is operating on a Lithium Ion battery. **Battery Status is indicated by % and colour**: **Green**: Battery fully charged (approx. 100-40% capacity remaining) **Yellow**: Charging recommended (approx. 40-21% capacity remaining) **Orange**: Low critical battery level. (Depending in COXX SW there will be audio signal when the hand control is activated. Limited actuator function).
B	Battery details	Automatically 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 setion 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 approx 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.

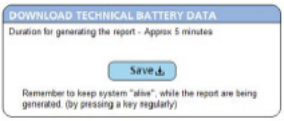
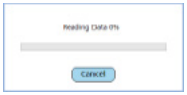
Service Data Tool help manual for BA21 Battery Service view



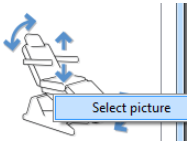
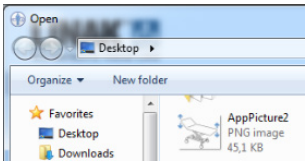
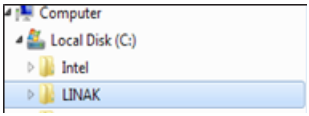
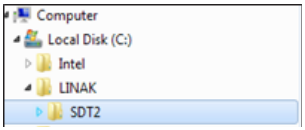
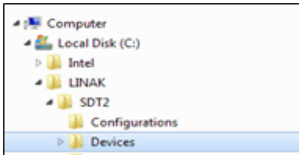
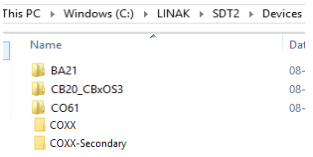
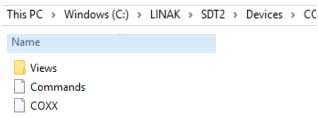
	Symbol	Explanation
		Please notice! This service data tool section is only to be used when support of LINAK BA21 lithium Ion battery. Please notice that outlook has to be available. Outlook will open automatically when report download is started. If you have a CO-Link system, it is possible to read-out battery statistics from two batteries connected to the primary COXX and the secondary COXX respectively. Choose the BA21 view Battery for read-out of statistics connected to the COXX primary control box. Choose the BA21 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		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

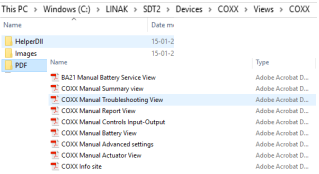
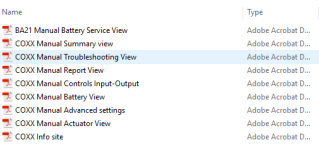
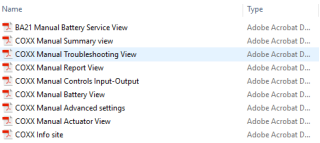
Service Data Tool help manual for BA16/19 Battery Service view



	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

	Symbol	Explanation
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"

Info Site

One info site can be added per section in the Service Data Tool. The info site can be used for…

- Service checklist for technician to follow
- User Manual
- Etc.

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