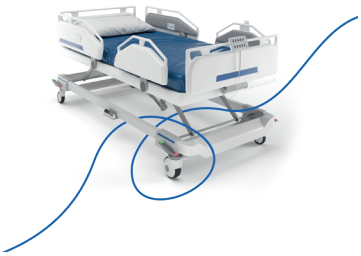
WeAssist

User Manual

Contents

Introduction



WeAssist is a unique, innovative system solution that makes it easy to drive and stop a heavy hospital bed – even on inclines. It is smart and intuitive wheel technology for intelligent hospital bed maneuverability, taking care of the caregivers by improving their work environment.

WeAssist is a system solution based on decades of experience and expertise within the global healthcare industry and developed in a powerful alliance between LINAK and TENTE.

Together, we are breaking the laws of motion, redefining the future of mobility.

This 4th castor system with an intelligent algorithm and the Integral assist castor set the standard for assisted driving on hospital beds and fulfill market requirements for intuitive use and differentiation with:

- Improved ergonomics and working conditions for the porters and caregivers
- Easy integration and sustainable upgrade without redesign of the hospital bed
- Data-driven maintenance and automated service schedules adding to efficient workflows. Service when needed – based on actual usage data
- Customisation and connectivity from the bed to information systems like central nurse stations via LINAK Communication Interface/LCi™
- Remote access to service data and diagnostics enables troubleshooting via OneConnect™

WeAssist from LINAK and TENTE contributes to reduced sick leaves, easy maintenance, job satisfaction for healthcare staff and freed up healthcare staff to have more time for patient care.

System description and operation

Functionality

Integral assist is providing intuitive assistance without any input from the user other than moving the application.

When the castor is in directional lock, the bed is moving, and external hardware signal present, the Integral assist provides assistance.

- When the castor is moving, the logic inside the Integral assist will detect movement, wake up the system and be ready for assistance.
- When the castor is not in directional lock or external hardware signal is not present, the Integral assist will still communicate with the customised control box software and collect statistical data and behaviour.
- A customised LINAK control box software can control the Integral assist behaviour on the WeAssist System
    - Enable/disable Integral assist when the battery capacity gets below minimum threshold to reserve battery capacity for emergency movement.
    - Enable/disable Integral assist when actuators are moving (actuator movement has priority over assistance).
    - Customer-specific functions based on Integral assist information.

Intelligent algorithm

The Integral assist software has an intelligent algorithm detecting what the user is doing:

- When the user is pushing the application slowly/easily, the Integral assist is applying a slight assistance.
- When the user is pushing the application quickly/hard, the Integral assist is applying more assistance to help start the application quickly.
- When the user stops pushing the application, the Integral assist will decrease the assistance.
- When the user pulls the application to stop or let go of the bed, the Integral assist will brake to stop the application.
- When the user drives the application up an incline, the Integral assist will apply more assistance to give extra help to the user.
- When the user drives the application down an incline, the Integral assist will apply brake force to keep the application under control.

Definition of Integral assist and WeAssist

Integral assist is defined by the following:

- TENTE product name of Integral assist castor
- LINAK and TENTE logos will be on the product and on the label
- Integral assist is WeAssist compatible

WeAssist is defined by the following

- When Integral assist is used in integrated or parallel systems with LINAK and TENTE products.
- The minimum setup of WeAssist is 4 x TENTE castors, 1 x LINAK control box, 1 x LINAK battery – with this setup we are allowed to use the registered trademark WeAssist.
- WeAssist compatible can be used by LINAK for other products that can be part of a WeAssist solution/ system – like Under Bed Light.
- WeAssist compatible can be used by TENTE for other products that can be part of a WeAssist solution/ system.

Technical data

Integral assist product information

Pre-condition to use Integral assist:

- Central locking system in place
- Short fitting, Ø32 mm
- Overall height: 183 mm (= Integral 150 mm)
- Tested use cases: hospital bed

Article description - Integral assist castor:

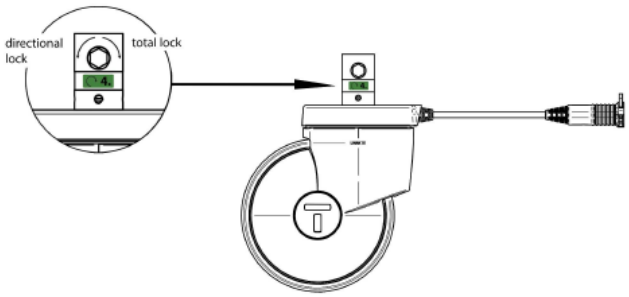
Housing:	ED44
Wheel:	ETW
Diameter:	150 mm
Fitting:	short fitting R36-32 (standard), R36-34 (quick fitting with octagon, optional)
Cam:	S35 (standard), S30 (optional)
Spring:	standard spring
Set-screw:	4xM6
Colour:	RAL9002 (standard), special colours on request
Clip:	RAL 9002 with "T" logo (standard), special colours or logos on request
Cover:	TENTE and LINAK logos
Cable outlet:	270 ° (standard), 0°, 90°, 180 ° (optional)
IP-rating:	IPX6
Washability:	Washable - 250 wash cycles, static - according to IEC 60601-2-52, in line with AK-BWA
Electrical conductivity:	Integral assist is not electrically conductive. One of the other 3 castors needs to be electrically conductive

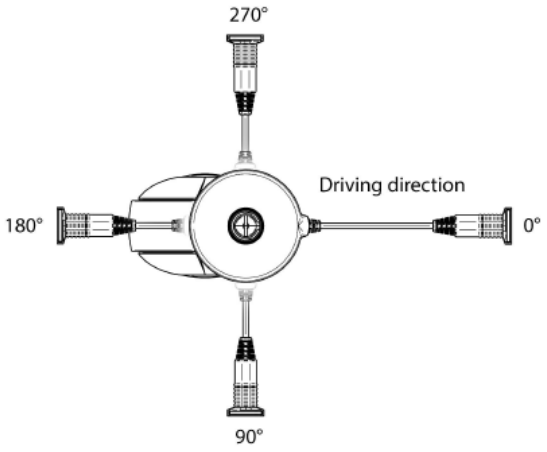
Information

For detailed information on Integral assist, please visit the product data sheets:

Integral assist data sheets

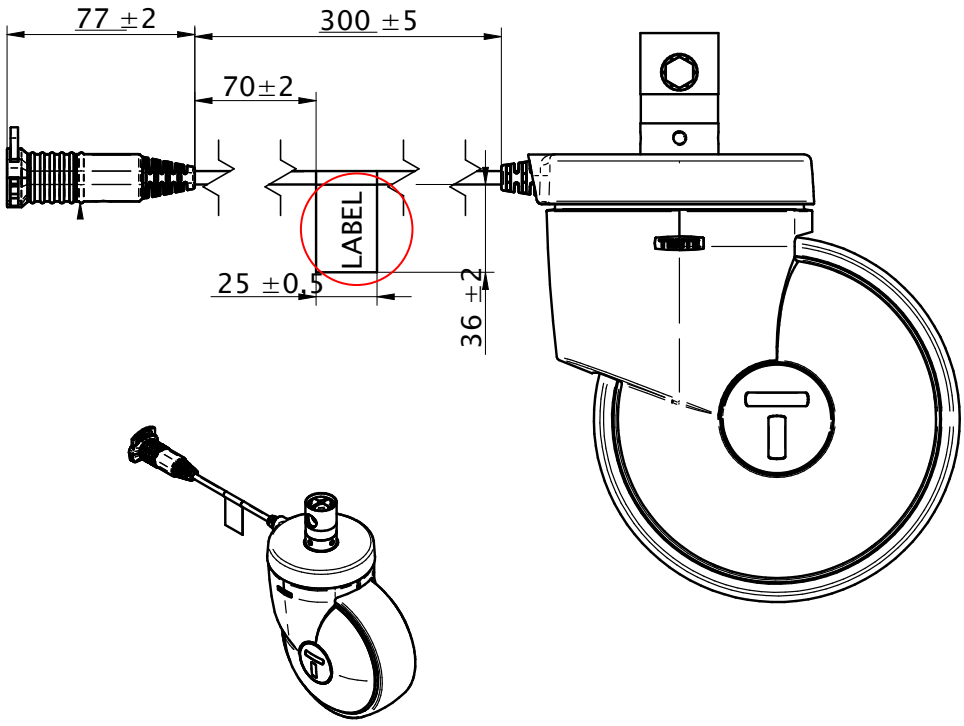
Cable outlet





Label position

The placement of the label is shown on the drawing below. For customer requests regarding the label, please contact TENTE.



Integral assist and Integral CLS fittings

R36-32	R36-34
	
• "Standard" TENTE fitting • Ø32 mm • Cam hole at 34 mm • Stem height total 51 mm	• TENTE quick fitting • Ø32 mm • Cam hole at 34 mm • Stem height total 50 mm

Test process and use cases

The test process and relevant use cases should be defined by the OEM (hospital bed manufacturer).

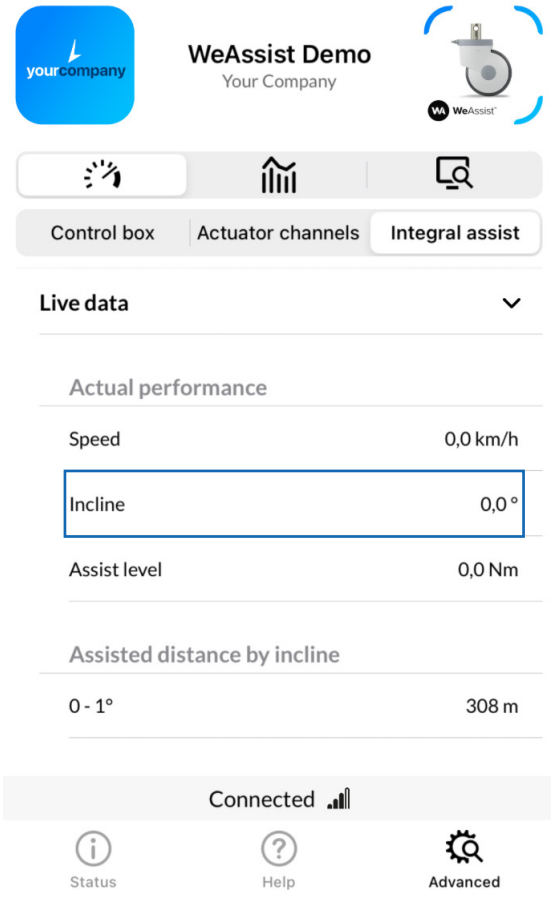
- The OEM is responsible for performing the necessary checks and validations.
- It must be ensured that the castor fits securely into the bed's tube interface, with no backlash exceeding ±0.5°.
- The linkage mechanism must be verified to reach all end positions reliably, without any transmission losses.
- The customer application must be tested to confirm that all desired assist functions operate as intended.

How to ensure correct assist

Additional incline assist is activated at +/- 1 degree. This means that if the surface changes by more than one degree, additional incline assistance will be provided. Therefore, it is recommended not to have a deflection on the application itself of more than +/- 0.5 degrees. With greater deflection, there is a risk of receiving incorrect assistance.

It is possible to measure the deflection using the WeAssist view in OneConnect™:

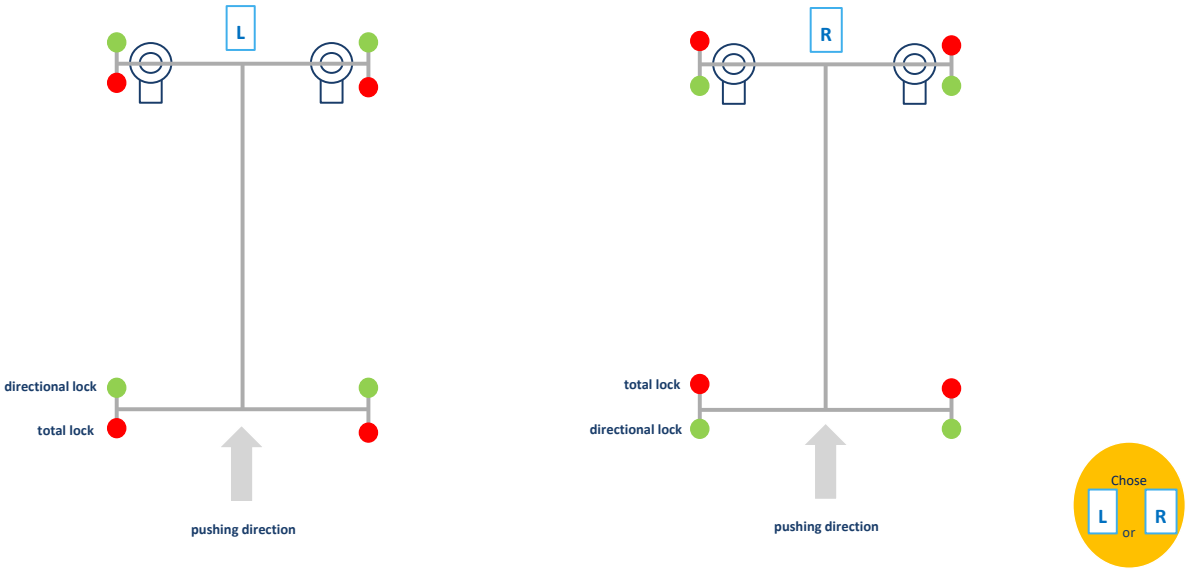
1. Connect the OneConnect App to application, and open 'live data' – and focus on 'Incline'
2. Put pedal and castor in direction lock
3. Stand still on flat surface
4. Wait 5 seconds
5. Read out 'Incline' => Incline_A
6. Change weight
7. Wait 5 seconds
8. Read out 'Incline' => Incline_B
9. Calculate deflection = Incline_A – Incline_B



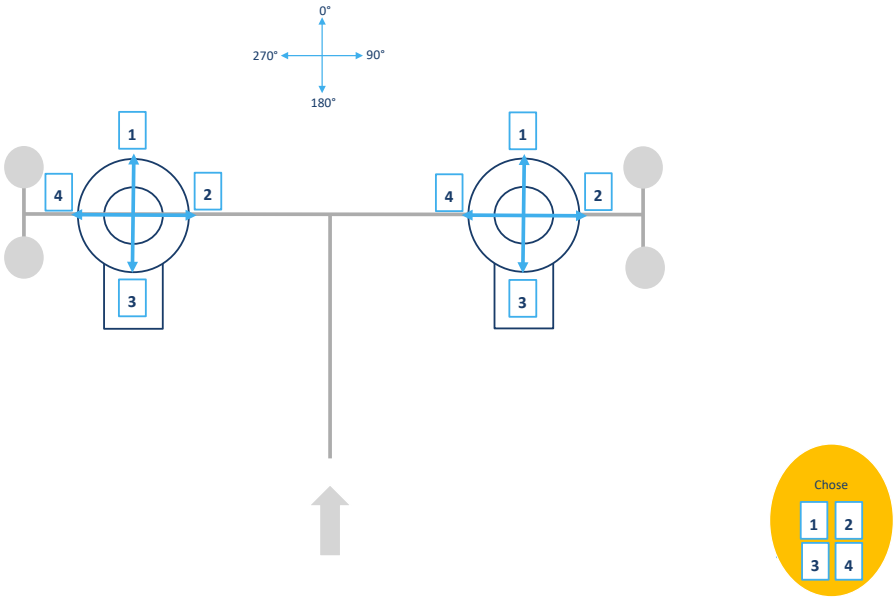
How to configurate Integral assist 360˚ directional lock

Integral assist 360˚ directional lock

Choose the pushing direction (L or R) in combination with lock pedal (green/red)



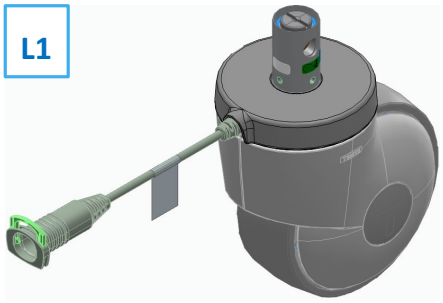
Choose cable outlet (1, 2, 3 or 4)



The selected pushing direction, lock pedal, and cable outlet result in the following configuration options.

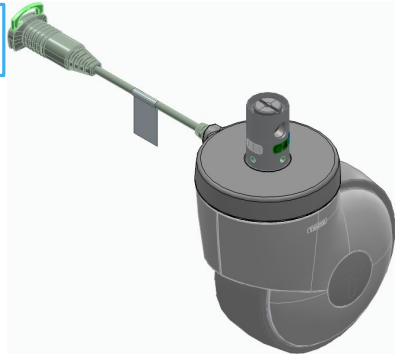
Find the right article description and code number.

L1



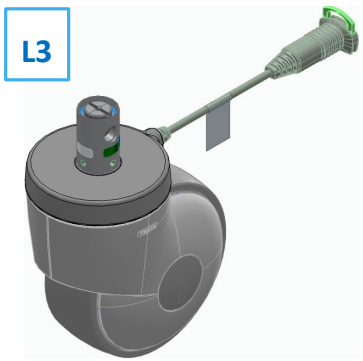
L1	Code
ED44ETW150**R36-32S35** D 9002 4xM6 0° **L**	900000351
ED44ETW150**R36-32S30** D 9002 4xM6 0° **L**	-
ED44ETW150**R36-34S35** D 9002 **L**	-

L2



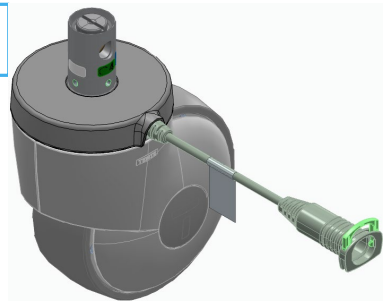
L2	Code
ED44ETW150**R36-32S35** D 9002 4xM6 90° **L**	900000352
ED44ETW150**R36-32D30** D 9002 4xM6 90° **L**	900000450
ED44ETW150**R36-34S35** D 9002 90° **L**	-

L3



L3	Code
ED44ETW150**R36-32S35** D 9002 4xM6 180° **L**	900000353
ED44ETW150**R36-32D30** D 9002 4xM6 180° **L**	-
ED44ETW150**R36-34S35** D 9002 180° **L**	-

L4



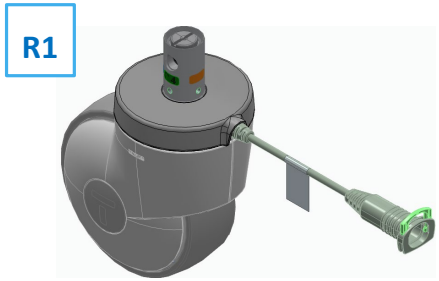
L4	Code
ED44ETW150**R36-32S35** D 9002 4xM6 270° **L**	900000354
ED44ETW150**R36-32D30** D 9002 4xM6 270° **L**	900000346
ED44ETW150**R36-34S35** D 9002 270° **L**	900000359

Information

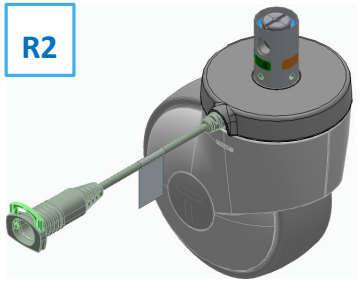
All left castors are marked with a **white** stick-on label.

The selected pushing direction, lock pedal, and cable outlet result in the following configuration options.

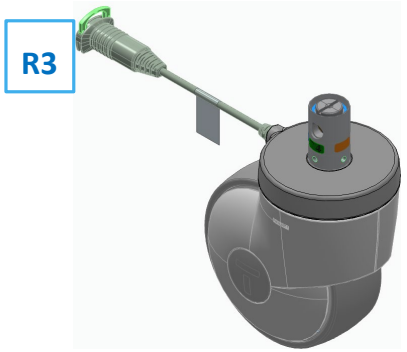
Find the right article description and code number.



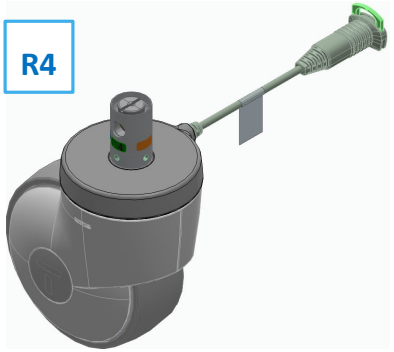
R1	Code
ED44ETW150**R36-32S35** D 9002 4xM6 0° **R**	900000347
ED44ETW150**R36-32D30** D 9002 4xM6 0° **R**	-
ED44ETW150**R36-34S35** D 0° **R**	-



R2	Code
ED44ETW150**R36-32S35** D 9002 4xM6 90° **R**	900000348
ED44ETW150**R36-32D30** D 9002 4xM6 90° **R**	-
ED44ETW150**R36-34S35** D 9002 90° **R**	-



R3	Code
ED44ETW150R36-32S35 D 9002 4xM6 180° R	900000349
ED44ETW150R36-32D30 D 9002 4xM6 180° R	-
ED44ETW150R36-34S35 D 9002 180° R	-



R4	Code
ED44ETW150R36-32S35 D 9002 4xM6 270° R	900000350
ED44ETW150R36-32D30 D 9002 4xM6 270° R	900000345
ED44ETW150R36-34S35 D 9002 270° R	900000358
ED44ETW150R36-32S35 D 9002 360°-N 270°	900000417

Information

All right castors are marked with an **orange** stick-on label.

WeAssist requirements

The WeAssist behaviour and functionality are based on some general assumptions that necessitate some limitations and requirements which are stated here:

- Floor surface: the surface must be hard, for instance linoleum, concrete or hardwood (no carpets)
- It is only made for indoor use
- The application weight must always be changed in total lock
- The empty bed weight must be identified and be customised in the control box application software. There is no weight calibration in WeAssist.

WeAssist rules that must be fulfilled

- The control box application has allowed assist
- No actuator movement
- The application is not connected to mains
- No FATAL ERROR in control box
- The bed mainly moves on flat surface

System and integration level

Any caregiver or porter deserves a bed with WeAssist. The solution is developed for integration into any market need for upgrade and integration into existing hospital beds or design into new hospital beds.

Integration level	System use
WeAssist System	Used for complete integration in new bed developments and is compatible with LINAK linear actuator systems featuring the communications protocol PCP2.0.

The use of a WeAssist system opens a world of customisable, value-adding options and gives access to digital services, and enhanced safety features like:

- Ensurance of battery capacity for emergencies
- Brake alarm
- Customisation of the control box software for Integral assist behaviour.
- Access to statistical data and service data report
- Remote access to service data via OneConnect™
- Prepared or access to usability data via LCi™ for instance for rental or service business concepts

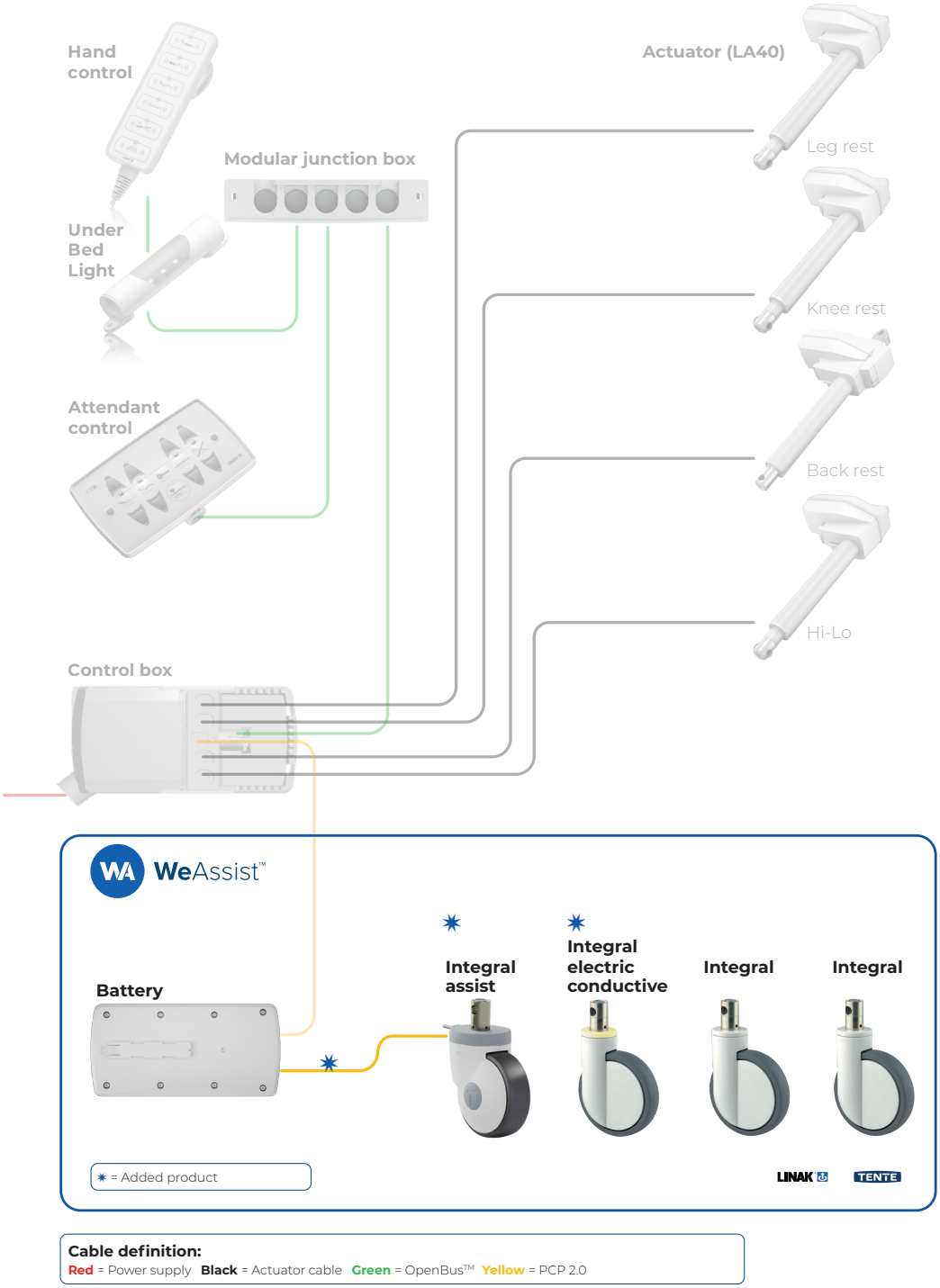
WeAssist system solution

Below overview shows how WeAssist is connected to a linear actuator system. Please have a look at the Integral assist - Easy Installation

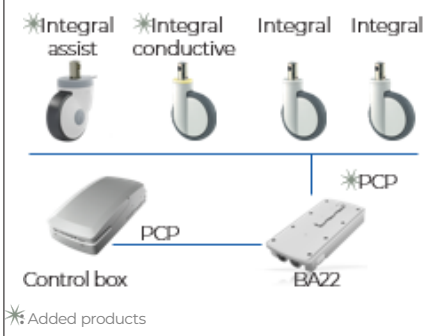
Connecting the system

- Make sure that all components are properly installed
- Disconnect all components from the battery
- Make sure that the Integral assist is in total lock state when it is being installed
- Connect the Integral assist to the battery
- Connect/reconnect other system components to the battery

System overview for new bed development



System products and features

WeAssist™	LINAK TENTE
For integration in LINAK systems with PCP 2.0	
Products	
Battery	LINAK
Control box	LINAK
System software	LINAK
TENTE Integral assist castor	TENTE
TENTE castor	TENTE
TENTE castor electric conductive	TENTE
PCP cables	LINAK
Linear actuators	LINAK
Hand control for actuators	LINAK
Features	
Battery charging and status	✓
Ensure battery capacity for emergencies	✓
Energy recuperation	✓
Integral assist software updates	✓
Integral assist features	
Directional lock detection	Internal detection available for system use
Total lock detection	Internal detection available for system use
Free lock detection	Internal detection available for system use
Intuitive assist	Default behaviour – can be customised
Incline detection	Internal detection available for system use
Bed movement detection	Internal detection available for system use
Options	
Battery stacking	✓
Customised control box software for Integral assist	✓
Software feature brake alarm	✓
Under Bed Light based on assist status	✓
LINAK Digital services – options	
Communication interface LCi™	✓
OneConnect™	✓
Preventive maintenance – time for service	✓
Remote access to service data	✓
Automated time for service	✓

Integral assist features and functionality

Start kick

When the user pushes to start the bed, a ‘start kick’ will be added to normal flat assist for a short period of time to help the user set the bed in motion.

Brake

When the user stops pushing the bed, no assist will be applied, and the bed will roll to a stop.

If the user pulls the bed to active stop, WeAssist detects the negative user input and helps brake the bed. The harder the user pulls, the harder WeAssist helps to brake.

Incline assist

When moving the bed up an incline, additional assist will be added (based on the incline degree).

When moving the bed down an incline, brake assist will be added (based on the incline degree).

When the bed is stationary on an incline, assist fades out and resumes once movement begins.

Let go’

When you are moving the bed and the staff let go of the hospital bed while it is still moving to rush on to the next task. There is a need to control the bed in the ‘let go’ situations. In general, there is a concern that a motorised bed will continue to move when it should not. However, ‘let go’ use cases or risk scenarios of a bed with WeAssist must always be compared to standard bed without assist by the OEM.

Based on feedback from OEMs, hospitals and end users, the main requirement for ‘let go’ is:

The ‘let go’ roll distance must be less or equal with assist compared to a standard bed.

To fulfill this requirement, we have implemented the ‘let go’ detection feature. It is a feature where the WeAssist system detects if a user is present and providing input or not. If not, the WeAssist system activates software braking via Integral assist.

‘Let go’ detection and brake are working on flat surfaces when the speed is below default or customised ‘maximum assist speed’.

Information

- Surface roughness and smoothness can affect the ‘let go’ detection as vibrations can be picked up as user input
- Be aware that ‘let go’ does not work on inclines

Information

A WeAssist bed will never start applying assist by itself when standing still. An external force must always start the movement before assist is applied.

Max. assist speed limit

Integral assist is set to a default assist speed of 5 km/h, providing support up to that limit.

As long as speed is lower than limit, assist is provided.

If the speed exceeds the limit, no assist is provided and the user is applying all the force. When the speed decreases below the limit, assist will be provided again.

Be aware that ‘Let go’ does not work above the maximum assist speed limit.

Wheel spin detection

Integral assist is able to detect and handle wheel spin due to a slippery surface, no castor contact to surface or no traction when assist is provided.

If wheel spin occurs, the castor will detect it and stop rotation and start again in a controlled way and continue to do so until the situation changes.

The wheel will not start spinning fast or uncontrolled and will never exceed the max assist speed limit.

Calibration

The Integral assist system uses two types of calibration: an initial factory calibration and ongoing automatic calibration.

Factory calibration: Performed once during initial installation or after the system has been reprogrammed.

Automatic calibration: Continuously carried out by the Integral assist system during normal use. No user action is required.

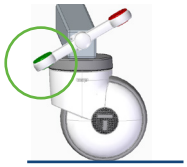
Factory calibration

Factory calibration must be performed once after the Integral assist castor is installed or reprogrammed.

Calibration via hand control

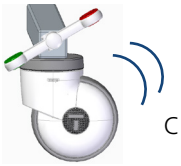
(keypress defined by bed manufacturer)

- Place the bed on a 0-degree flat surface and ensure that the castor is set to directional lock.



0-degree flat surface

- Push or pull the bed until you hear a click, confirming that directional lock is engaged.



Click sound

- Switch the lock to total lock within max. 2 seconds.

Lock positions: directional → neutral → total

One time
within 2 seconds

- Press the calibration key on the hand control and keep the bed still for 3 seconds.

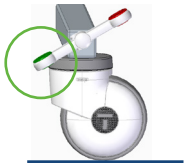
Press the hand control calibration key for 3 seconds

- A constant 1-second buzzer sound confirms that the initial calibration is complete. This feature is optional/configurable.

1-second buzzer sound = calibration ✓

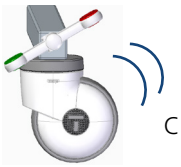
Calibration via brake pedal

- Place the bed on a 0-degree flat surface and ensure that the castor is set to directional lock.



0-degree flat surface

- Push or pull the bed until you hear a click, confirming that directional lock is engaged.



Click sound

- Switch from directional lock to total lock three times within 10 seconds.

Lock positions: directional → neutral → total

Repeat 3 times within 10 seconds

- When total lock is engaged for the third time, a constant 1-second buzzer sound confirms that the initial calibration is complete.This feature is optional/configurable.

1-second buzzer sound = calibration

Information

Factory calibration must be performed on a flat, 0-degree surface. If manual calibration is done on an uneven surface, the calibration will be incorrect and will cause incorrect assist behaviour. However, over time the automatic calibration system will gradually adapt and readjust once the bed is used on a flat surface again.

Automatic calibration

Integral assist continuously calculates calibration values, whenever the WeAssist system is awake, regardless of whether the Integral assist is in neutral, directional lock, or rotating or not.

The system adjusts if calibration is slightly off due to uneven surfaces or weight changes. Alternatively, a factory calibration reset can be done.

Application Deflection and testing

The Application deflection is the angular deviation under load, affecting stability and safety in technical applications.

The safe working load threshold

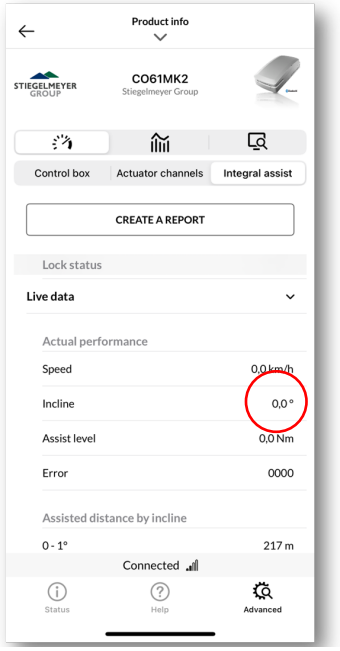
The maximum allowable deflection is ±0.5 degrees under safe working load to ensure operational performance and safety.

The Incline Assist activates at ±1.0 degrees to provide additional support when the application tilts beyond normal limits.

Monitoring deflection is essential to maintain product integrity and ensure user safety in healthcare environments.

Deflection test procedure

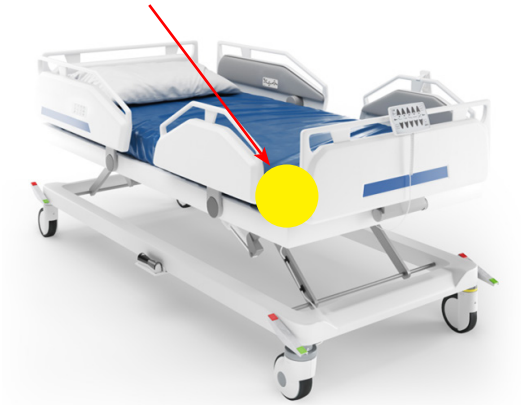
Place the application on flat surface, align castors, lock and calibrate the system before testing.

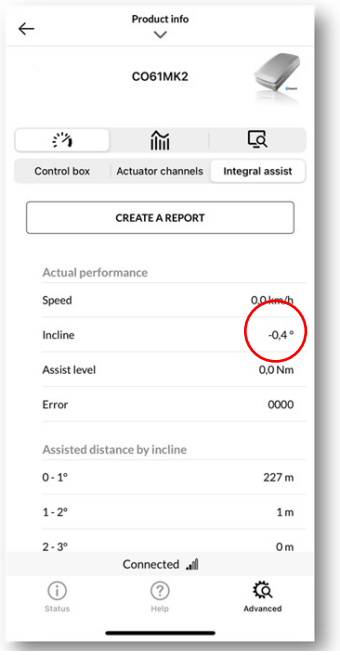


Read out the initial angle using OneConnect app ensuring empty application reads zero degrees.

Load application and measurement

Apply 100 kg load on the mattress corner above Integral Assist or apply safe working load on the bed and measure deflection angle again.





Validation of deflection

Validate that deflection does not exceed ±0.5 degrees to meet specification requirements.

Use the OneConnect™ app.

WeAssist features

Brake alarm

The WeAssist system with full integration of LINAK actuator system solutions bring you added safety and customisation with a smart brake alarm. The software for the brake alarm can be customised, for instance on the basis of locking status and movement of the Integral assist.

- The alarm is activated when wheels are not locked, and the bed is connected to mains
- If the bed is not connected to mains, the functionality will be ignored
- This alarm helps to avoid breaking the wall plug and increase safety

Ensure battery capacity for emergencies

The WeAssist system with full integration of LINAK actuator system solutions bring added safety and customisation with a smart safe-operation battery feature. The software for the safe-operation battery feature can be customised, for example adjustment of the battery percentage.

The feature is activated when the battery level falls below the limit. This limit is by default 550 mAh (20%), ensuring that there is always enough battery capacity to do actuator movement. This feature helps to prevent battery depletion and ensures continued safe operation.The feature will evaluate the battery capacity each time before an assist, and it will not cut off an ongoing assist session.

Integral assist error messages

Error Code	Short description	Long description	Troubleshooting guide
0101	Hardware error	0101 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0102	Wrong software	0102 : Wrong Software or programming error	Disconnect, wait, reconnect / reprogram / replace castor
0103	Wrong software	0103 : Wrong Software or programming error	Disconnect, wait, reconnect / reprogram / replace castor
0104	Hardware error	0104 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0105	Hardware error	0105 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0106	Hardware error	0106 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0107	Hardware error	0107 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0108	Hardware error	0108 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0201	Hardware error	0201 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0202	Hardware error	0202 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0301	Communication error	0301 : Internal Communication error	Disconnect, wait, reconnect / replace castor
0302	Operational disturbance or error	0302 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0303	Operational disturbance or error	0303 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0401	Hardware error	0401 : Operational disturbance or hardware error	Disconnect, wait, reconnect / replace castor
0501	Communication error	0501 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0502	Communication error	0502 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0503	Communication error	0503 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0504	Communication error	0504 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0505	Communication error	0505 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0506	Communication error	0506 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0507	Communication error	0507 : Internal communication error or hardware error	Disconnect, wait, reconnect / replace castor
0601	Critical error	0601 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor

Error Code (continued)	Short description	Long description	Troubleshooting guide
0602	Critical error	0602 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0603	Critical error	0603 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0604	Critical error	0604 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0605	Critical error	0605 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0606	Critical error	0606 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0607	Critical error	0607 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor
0608	Critical error	0608 : Operational disturbance or critical hardware error	Disconnect, wait, reconnect / replace castor

Integral assist usage

Storage temperature:	-10 °C to +45 °C
Operation temperature:	+5 °C to +40 °C
Compatibility:	LINAK control boxes with Power Communication Port (PCP 2.0) LINAK recommended control boxes: CO61 MK2 with Bluetooth® Low Energy, CO71 MK2 with Bluetooth® Low Energy. If other PCP2.0 control boxes are requested, please contact LINAK A/S. LINAK batteries: BA22 TENTE castor: Integral assist, Integral and Integral conductive
Atmospheric pressure:	700 to 1060 hPa
Relative humidity:	20% - 80% - non-condensing
Meters above sea level:	Max. 3000 meters
Flammability class:	V0
Standards, directives and regulations:	
Total application weight:	Total weight = empty bed + safe working load (SWL) Total weight = max. 450 kg (3x150 kg)
Max. speed:	12 km/h
Max. assist speed:	Adjustable (3.0 - 6.0 km/h) – Default 5.0 km/h
Max. current:	10 Amps up to 25 °C
Supply voltage:	28 V DC
Incline:	Up to 6°
IP-rating:	IPX6
Washability:	Washable - 250 wash cycles, static - according to IEC 60601-2-52, in line with AK-BWA

Standards, directives and regulations

Standard, directive, regulation	Issuer/ certification body	Document name
DIN EN 12531:1999-05	TENTE	Test report 14734 E
Similar to IEC 60601-2-52:2009 + Cor.:2010+A1:2015, clause 201.9.4.2.4.3-Movement over a threshold	TENTE	Test report 14734 E
250x washing test according to the IEC 60601-2-52 standard and the LINAK IPX6 Washable DURA™ test	LINAK	Test report 15541
IEC 60529:1989 + A1:1999 + A2:2013 (IPX6 test)	UL Solutions	DK-171757-M1-UL
IEC 60601-1:2005 + A1:2012 + A2:2020	UL Solutions	DK-171757-M1-UL
IEC 60601-1-6:2010 + A1:2013 + A2:2020	UL Solutions	DK-171757-M1-UL
IEC 60601-1-2:2014 + A1:2020	SIQ	WeAssist_EMC-Cert_CB_SI-12146
ANSI/AAMI ES60601-1:2005 + A1:2012 + A2:2021	UL Solutions	UL CoC
CAN/CSA-C22.2 NO.60601-1:2008 + A1:2014 + A2:2022	UL Solutions	UL CoC
Directive 2011/65/EU (RoHS) and Regulation (EC) No 1907/2006 (REACH)	LINAK	LINAK-rohs-information
General Engineering Conditions of Acceptability as an extract of report DK-171757-M1-UL and part of the RMA	TENTE/LINAK	Integral assist_ISSR_006
EC Declaration for partly completed machinery acc. Annex VII, Part B of the Machinery Directive 2006/42/EC	TENTE	EC-Declaration-Integral-assist-V02
Installation instruction Integral assist	TENTE	Assembly-instructions-Integral-assist-V01
WeAssist User Manual	LINAK	https://www.weassist.com/de/weassist_um_eng/

Declaration of Incorporation of partly completed machinery

TENTE: **Declaration of Incorporation of partly completed machinery**

LINAK: **Declaration of Incorporation of partly completed machinery**

Safety Information

This manual is for equipment and system manufacturers only. It provides essential technical and safety guidance for installation, operation, and maintenance.

Application manufacturers are responsible for preparing and supplying a user manual that includes all relevant safety instructions for the end user.

To ensure safe and reliable operation:

- Read and follow all instructions before use or servicing.
- Keep this manual accessible throughout the system's lifespan.
- Replace lost or unreadable manuals and pass them on to future users.

Installation and electrical work must be performed by qualified personnel familiar with applicable regulations. Only individuals with sufficient experience should operate the device; those with reduced abilities must be supervised or properly instructed. Always wear suitable protective clothing and use appropriate measures to prevent electrostatic discharge.

- **Recommendations** aim to prevent property damage and operational issues.

  Failing to follow these instructions can result in product damage.
- **Warnings** are safety notices designed to prevent personal injury.

  Failure to comply with these instructions may result in accidents involving serious personal injury.

Please follow all safety guidance to ensure proper handling and reliable performance.

The following recommendations and warnings apply to the products in the WeAssist system.

BA22

Recommendations

- Charge the battery fully before first use.
- Adhere to the battery storage temperature or else the lifetime and performance will be reduced.
- Allow the battery to settle to room temperature before use or charging.
- Adhere to the duty cycle or else the lifetime and performance will be reduced.
- BA22 Li-Ion is neither intended for use in outdoor applications, pool environments nor other harsh environments.
- Recharge the battery before storage if it has been completely discharged.
- Only charge with applicable LINAK control boxes.

Safety feature

BA22 Li-Ion contains several mechanisms to protect itself from being damaged due to excessive use.

In case of overheating, the device will activate a thermal protection. No power output will be available until the temperature has returned to normal operating range. Overheating may occur by extensive use at high temperatures.

BA22 safety

LINAK Li-Ion batteries for medical use are designed and manufactured to be safe through the product life. LINAK has performed various tests of the batteries in normal use, abuse and failure situations to verify the design and production methods. These tests have not shown any unacceptable risks.

The batteries are UL-tested to have an independent organisation verify the safety of the design and to obtain a safety certificate. This means that UL regularly inspects the factory to check that standards are complied with.

BA22 is tested in accordance with the following standards:

UN38.3 Battery Transportation Safety

IEC62133-2 Battery Safety

Warnings

All Li-Ion battery users must read and follow these safety instructions. Improper use or failure to follow warnings may cause injury or equipment damage.

- Li-Ion batteries have built-in deep discharge protection, unlike lead-acid types. Continuous use despite warnings may cause sudden power loss without notice.
- Manufacturers must ensure applications do not exceed battery specifications and provide alternative movement options in emergencies.
- If caution labels are unclear, read the product symbols and include warnings in the device manual.
- Do not open, disassemble, or modify the battery housing, as this may cause overheating.
- Maintain at least a 5 cm air gap on one side of the battery to prevent vent blockage.
- Stop using the battery if it smells unusual, feels hot, changes color or shape, or shows damage.
- If the battery overheats, disconnect and remove it from the room, or evacuate if removal is not possible.
- Do not transport defective, damaged, or overheated batteries.
- Always follow specified charging, storage, and operating temperatures to prevent fire.
- Follow mounting instructions to avoid water exposure.
- Ensure the charger and host device are compatible.
- Recharge batteries at least every 24 months.
- Dispose of batteries according to local regulations.

Do NOT:

- Heat, burn, or short-circuit batteries
- Expose to high impact, crush, or puncture
- Charge or store near combustible materials
- Charge without supervision
- Submerge in water or liquids

Any of these actions can cause fire or injury.

LINAK will remedy defective Li-Ion batteries in LINAK products as per the terms on the LINAK web-site. All other remedies and liabilities are disclaimed.

CO61MK2

Recommendations

- To avoid cables from being damaged by pulling, LINAK recommends to make safe cabling
- To avoid thermal protection from being activated, do not exceed load specifications
- Push plugs fully into correct sockets and make sure that the plugs are completely inserted.
- Mount the control box lid and close it until it is locked in place.

MOTOR CABLE

- Always use 6-wire cables.

- Please note that angled motor cable plugs are required for connection to the control box.

Warnings

- Use EPR or ensure that the user takes care not to squeeze the mains cable.
- Always check correct assembly after mounting and service to ensure that the cable lock is mounted. (Connectors are usually removed during cleaning)
- Always use approved chemicals with the housing as the plastic may show corrosion caused by some chemicals. As a result, water may accumulate/gather in housing.
- Take special precautions concerning 3rd party interfacing. Please contact LINAK for further information.
- To avoid cable interruption and defects make a proper cable installation and inspect regularly for wear and damage. Defective parts must be replaced.
- After service inspection, the application must be tested for correct functionality before it is put into operation. Operators must not be inside entrapment area.
- To avoid electrical failure or system disturbance inspect regularly for wear and damage. Defective parts must be replaced.
- If using Bluetooth Low Energy controls, pay attention to stay within viewing distance.

Integral assist

Recommendations

- Only use the system as described in the instructions to avoid damage.
- Ensure all connection cables are properly laid and secured.
- Make sure all connectors are correctly plugged into their respective sockets.
- Tighten all installation screws according to the manufacturer's specifications to prevent component malfunction and injury (e.g. to body, hands, or feet).
- Keep the connection cable inserted during cleaning to prevent water ingress.
- Do not use high-pressure cleaners.
- Avoid using steam cleaners.
- Avoid using UV cleaning devices.
- Only use cleaning agents approved for the system; contact your sales partner for guidance.
- Move the system over or into obstacles only at a reduced speed (max. 3 km/h) to avoid damage or malfunction.

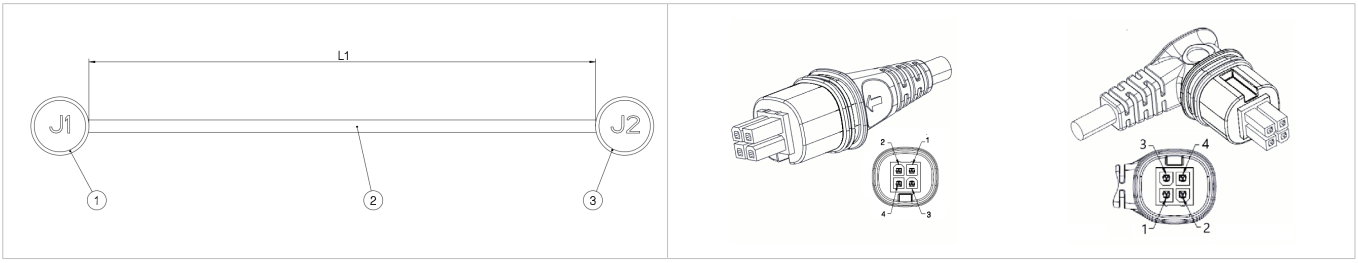
Warnings

- The application manufacturer shall ensure that all touchable dead metal parts have the same electrical potential, or that there are at least two Means of Protection (MOP) between touchable dead metal parts with different electrical potentials.
- The assistive castor is designed to propel the application with a force of 133 N. Based on the results of a usability study, the manufacturer shall assess the necessity of incorporating power-controlling switch(es) to maintain operational safety and user control.
- The application manufacturer must be aware that an application which is in directional lock (not braked), and has an active external hardware signal, will start moving when a push force is applied in either direction.
- It is explicitly recommended to instruct users never to leave the application unbraked.
- Ensure all electrical connections are made by qualified personnel.
- Use only appropriate connection cables.
- Verify that cables are properly laid and undamaged.
- Ensure no persons are present in the movement path of the frame during operation.
- Avoid incorrect connection to prevent risk of fatal electric shock.
- Perform work only when the system is de-energised and cooled down.
- Wear tight-fitting clothing when working near moving components.
- Do not wear loose jewellery.
- Secure long hair with a hair net.

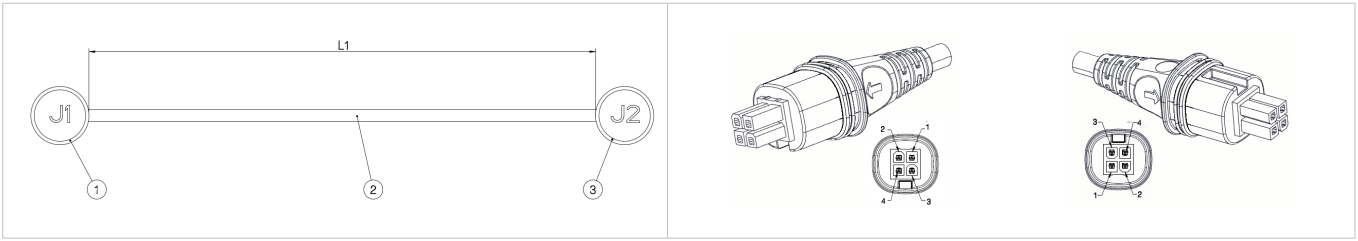
Cables

WeAssist is working with LINAK standard PCP cables

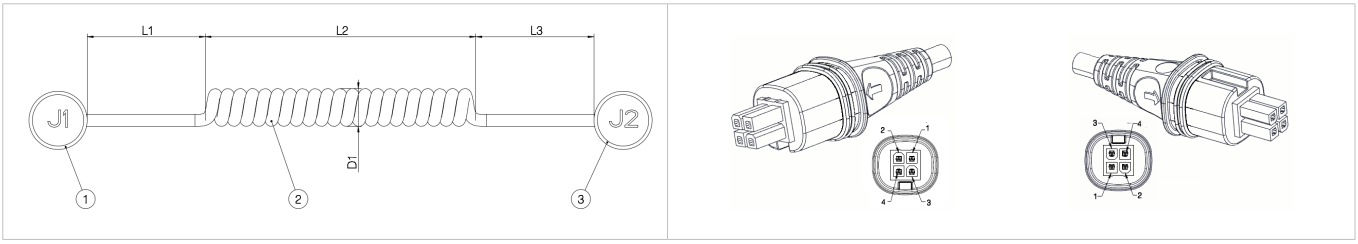
CAB1019W7001-0185, straight to angled, 4-poled Mini-Fit to Mini-Fit connector, std. length (185, 200, 500, 1000, 1300, 2000 mm)



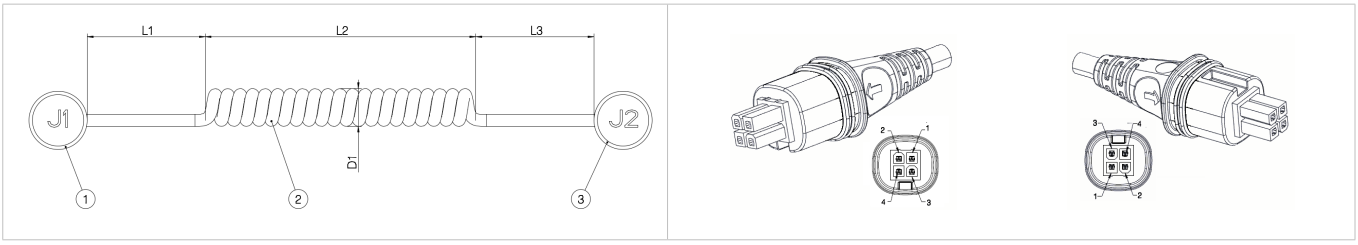
CAB90169-0500, straight to straight, 4-poled Mini-Fit to Mini-Fit connector, std. length (500, 1000, 1500, 2000, 2500 mm)



CAB90230, straight to straight, 4-poled Mini-Fit to Mini-Fit connector, coiled cable, length: (L1:50, L2:600, L3:1400 mm)



CAB90228, straight to straight, 4-poled Mini-Fit to Mini-Fit connector, coiled cable, length: (L1:700, L2:400, L3:1250 mm)



Contact

TENTE-ROLLEN GmbH

Herrlinghausen 75

42929 Wermelskirchen, Germany

Phone: +49-219699-0

Fax: +49-219699-127

E-mail: info.de@tente.com

Internet: www.tente.com

LINAK A/S

Group Headquarters

Smedevænget 8, Guderup

DK-6430 Nordborg, Denmark

Phone: +45 7315 1515

Fax: +45 7445 8048

Internet: www.linak.com

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