



Actuator LA36 IC - CAN J1939, CANopen & I/O  
Including Long Life  
**User manual**

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# Preface

Dear User,

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

LINAK systems are high-tech products based on many years of experience in the manufacture and development of actuators, electric control boxes, controls, and chargers.

This user manual does not address the end-user, but is intended as a source of information for the manufacturer of the equipment or system only, and it will tell you how to install, use and maintain your LINAK electronics. It is the responsibility of the manufacturer of the end-use product to provide a User Manual where relevant safety information from this manual is passed on to the end-user.

We are sure that your LINAK product/system will give you many years of problem-free operation. Before our products leave the factory they undergo full function and quality testing. Should you nevertheless experience problems with your LINAK product/system, you are always welcome to contact your local dealer. LINAK subsidiaries and some distributors situated all over the world have authorised service centres, which are always ready to help you.

LINAK provides a warranty on all its products. This warranty, however, is subject to correct use in accordance with the specifications, maintenance being done correctly and any repairs being carried out at a service centre, which is authorised to repair LINAK products. Changes in installation and use of LINAK products/systems can affect their operation and durability. The products are not to be opened by unauthorised personnel.

The User Manual has been written based on our present technical knowledge. We are constantly working on updating the information and we therefore reserve the right to carry out technical modifications.

**LINAK A/S**

## **LINAK application policy**

The purpose of the application policy is to define areas of responsibilities in relation to applying a LINAK product defined as hardware, software, technical advice, etc. related to an existing or a new customer application.

LINAK products as defined above are applicable for a wide range of applications within Medical, Furniture, Desk, and Industry areas. Yet, LINAK cannot know all the conditions under which LINAK products will be installed, used, and operated, as each individual application is unique.

The suitability and functionality of the LINAK product and its performance under varying conditions (application, vibration, load, humidity, temperature, frequency, etc.) can only be verified by testing, and shall ultimately be the responsibility of the LINAK customer using any LINAK product.

LINAK shall be responsible solely that LINAK products comply with the specifications set out by LINAK and it shall be the responsibility of the LINAK customer to ensure that the specific LINAK product can be used for the application in question.

# Chapter 1



## Safety instructions

Please read this safety information carefully:

Be aware of the following three symbols throughout the user manual:



### Warning!

Failing to follow these instructions can cause accidents resulting in serious personal injury.



### Recommendations

Failing to follow these instructions can result in the actuator suffering damage or being ruined.



### Additional information

Usage tips or additional information that is important in connection with the use of the actuator.

Furthermore, ensure that all staff who are to connect, mount, or use the actuator are in possession of the necessary information and that they have access to this user manual.

Persons who do not have the necessary experience or knowledge of the product/products must not use the product/products. Besides, persons with reduced physical or mental abilities must not use the product/products, unless they are under surveillance or they have been thoroughly instructed in the use of the apparatus by a person who is responsible for the safety of these persons.

Moreover, children must be under surveillance to ensure that they do not play with the product.

### **Before you start mounting/dismounting, ensure that the following points are observed:**

- The actuator is not in operation.
- The actuator is free from loads that could be released during this work.

### **Before you put the actuator into operation, check the following:**

- The actuator is correctly mounted as indicated in the relevant user instructions.
- The equipment can be freely moved over the actuator's whole working area.
- The actuator is connected to a mains electricity supply/transformer with the correct voltage and which is dimensioned and adapted to the actuator in question.
- Ensure that the voltage applied matches to the voltage specified on the actuator label.
- Ensure that the connection bolts can withstand the wear.
- Ensure that the connection bolts are secured safely.

**During operation, please be aware of the following:**

- Listen for unusual sounds and watch out for uneven running. Stop the actuator immediately if anything unusual is observed.
- Do not sideload the actuator.
- Only use the actuator within the specified working limits.
- Do not step or kick on the actuator.

**When the equipment is not in use:**

- Switch off the mains supply in order to prevent unintentional operation.
- Check regularly for extraordinary wear.

**Classification**

The equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

**Warnings**

- Do not sideload the actuator.
- When mounting the LA36 in the application ensure that the bolts can withstand the wear and that they are secured safely.
- If irregularities are observed, the actuator must be replaced.

**Recommendations**

- Do not place load on the actuator housing and do prevent impact or blows, or any other form of stress to the housing.
- Ensure that the cable cover is mounted correctly. Use 3.5 Nm torque.
- Ensure that the duty cycle and the usage temperatures for LA36 actuators are respected.
- Ensure that the cable cannot be squeezed, pulled or subjected to any other stress.
- Furthermore, it will be good practice to ensure that the actuator is fully retracted in the "normal" position. The reason is that there will be a vacuum inside the actuator if it is extended which over time can lead to water entering the actuator.
- If the actuator (without integrated controller) is mounted in an application where a mechanical stop prevents the endstop switches in the actuator from being activated, the actuator must be equipped with an electrical safety device (current monitoring) or external limit switch.

# Chapter 2

## Mounting guidelines

LINAK® linear actuators are quickly and easily mounted by slipping pins through the holes on each end of the units and into brackets on the machine frame and the load.

The mounting pins must be parallel to each other as shown in Figure 1. Pins, which are not parallel to each other, may cause the actuator to bend and be damaged.

The load should act along the stroke axis of the actuator since off centre loads may cause bending and lead to premature failure. See Figure 2.

Make sure the mounting pins are supported in both ends. Failure to do so could shorten the life of the actuator. Also, avoid applying a skew load on the actuator.

The actuator can rotate around the pivot point in the front and rear end. If this is the case it is of high importance that the actuator is able to move freely over the full stroke length, both during the development and during daily operation. Please pay special attention to the area around the housing where parts can be trapped and cause damages to the application and actuator.

In applications with high dynamic forces LINAK recommends not to use the fully extended or retracted position over longer time, as this can damage the endstop system permanently.

Figure 1

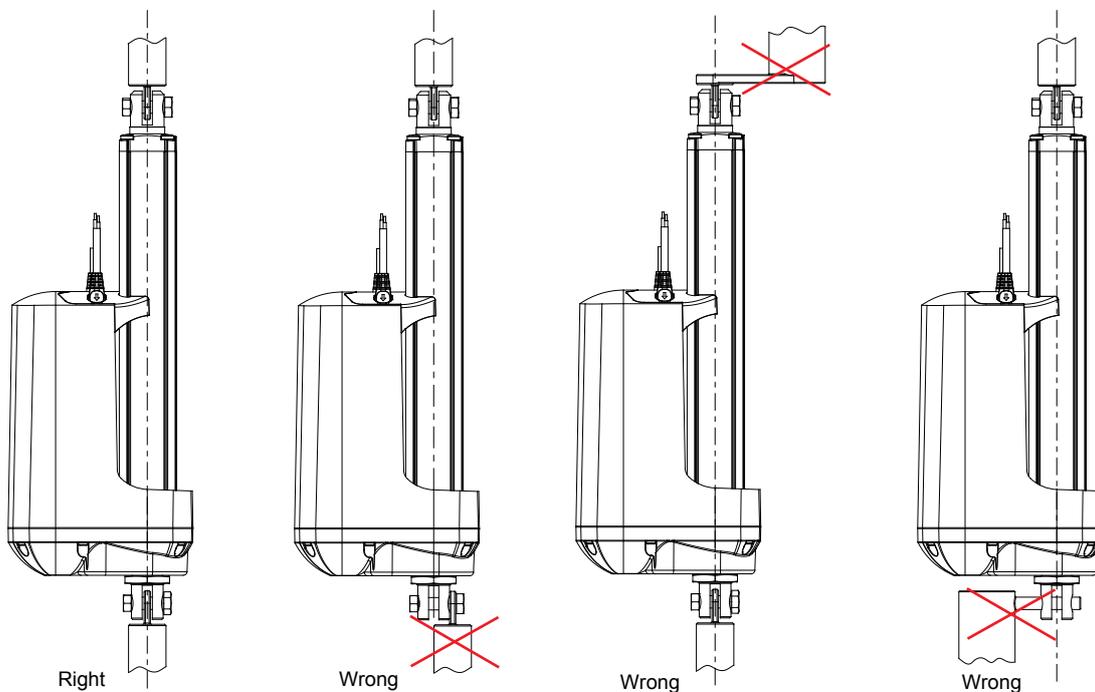
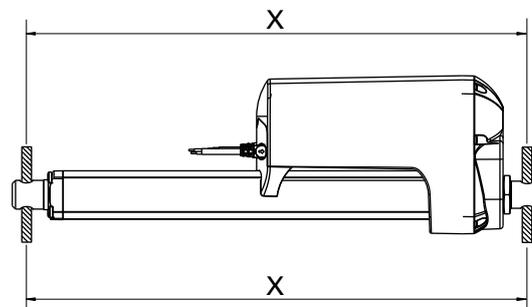


Figure 2



Please be aware that if the LA36 is used for solar applications the actuator must be mounted with the motor housing turned upwards and the wires pointing downwards.

## Mounting guidelines



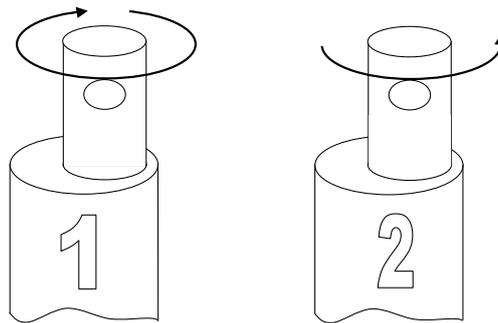
- The mounting pins must have the correct dimension.
- The bolts and nuts must be made of a high quality steel grade (e.g. 10.8). No thread on the bolt inside the back fixture or the piston rod eye.
- Bolts and nuts must be protected so there is no risk for them to fall out.
- Do not use a torque that is too high when mounting the bolts for the back fixture or the piston rod eye. This will stress the fixtures.

### Please note:

**The piston rod eye is only allowed to turn 0-90 degrees.**

### Instruction concerning the turning of the piston rod eye and inner tube:

- When mounting and taking into use, it is not permitted to make excessive turns of the piston rod eye. In cases where the eye is not positioned correctly, it is permitted to first screw the eye down to its bottom position, at a maximum torque of 2Nm (1), and thereafter a maximum 90 degrees turn outwards again (2).
- As the piston rod eye can turn freely, it is important to ensure that the eye cannot rotate if the actuator is used in a pull application. If this happens, the actuator will be pulled apart and destroyed.



### Warning!

**If the actuator is used for pull in an application where personal injury can occur, the following is valid:**

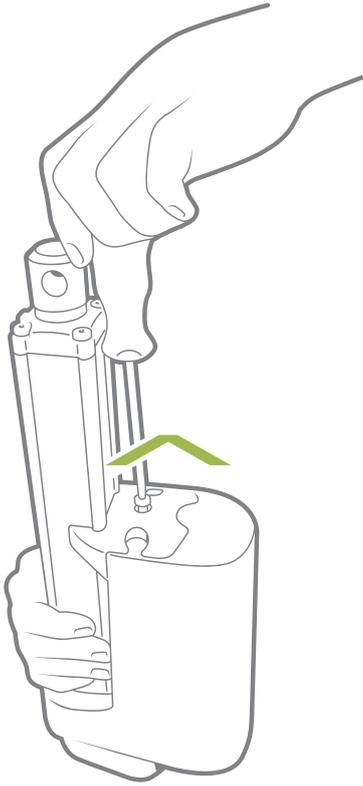
It is the application manufacturer's responsibility to incorporate a suitable safety arrangement, which will prevent personal injury from occurring, if the actuator should fail.

### Warning!

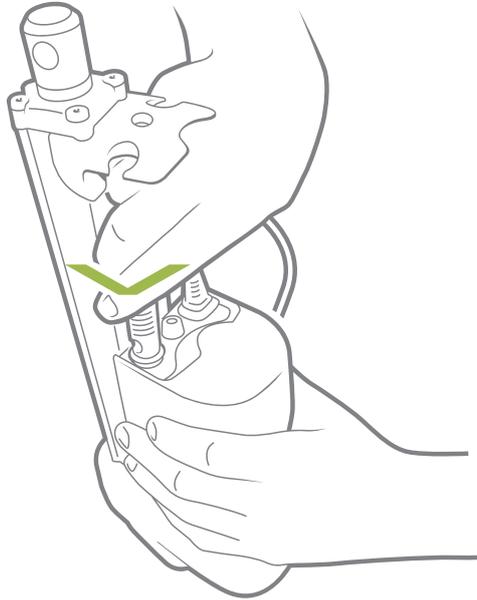
**LINAK's actuators are not designed for use within the following fields:**

- Offshore installations
- Nuclear power generation
- Aeroplanes and other aircraft

## Mounting of cables



1. Unscrew the cover and remove the two blind plugs.



2. Plug in the power cable and/or the signal cable.



3. Slide the cover onto the actuator.

The torque of the cover screw is approx.  $3.5 \pm 0.3$  Nm

TORX 25IP



When changing the cables on a LINAK actuator, it is important that this is done carefully, in order to protect the plugs and pins. Before the new cable is mounted, we recommend that the socket is greased with vaseline, to keep the high IP protection and ensure an easy mounting. Please be sure that the plug is in the right location and fully pressed in before the cable lid is mounted.

Please note that if the cables are mounted and dismantled more than 3 times the plugs can be damaged. Therefore, we recommend that such cables are discarded and replaced. Also note that the cables should not be used for carrying the actuator.

We recommend to take some precaution and design the wire connection in a way, where the cable end is kept inside a closed, protected area to guarantee the high IP protection.

## Electrical installation



- Actuators with integrated controller provides higher self-locking by automatically shortening the motor. This feature is active, as long as the actuator is powered.
- The actuator will have a soft stop of 300 ms. This is done in order to minimize voltage peaks being sent back towards the power supply. It is important when selecting the power supply that it does not turn off the output, when this backwards load dump occurs.
- The actuator have a Hall based position system. To ensure the reliability of the position feedback for the full life time of the product, the actuator must be able to re-calibrate this in the application.
- The calibration is performed when the actuator moves in a outwards direction over the area 35-70 mm in one continuously movement without changing speed or stopping.

## IC options overview

	CANbus				
	CAN J1939	CANopen	Basic	Customised	Full
<b>Control</b>					
12V/24 V BDC only	√	√	-	-	-
24/48 V BDC/BLDC	√	√	√	√	√
H-bridge	√	√	√	√	√
Manual drive in/out	√	√	√	√	√
Soft start/stop	√	√	√	√	√
Virtual limits	√	√	-	Add on	√
Parallel	-	-	-	Add on	√
Adjustable speed	√	√	-	Add on	√

<b>Feedback</b>					
Voltage (V)	-	-	-	Add on	√
Current (mA)	-	-	-	Add on	√
Single hall XOR	-	-	-	Add on	√
Dual hall	-	-	-	Add on	√
End stop signals in/out	√	√	√	Add on	√

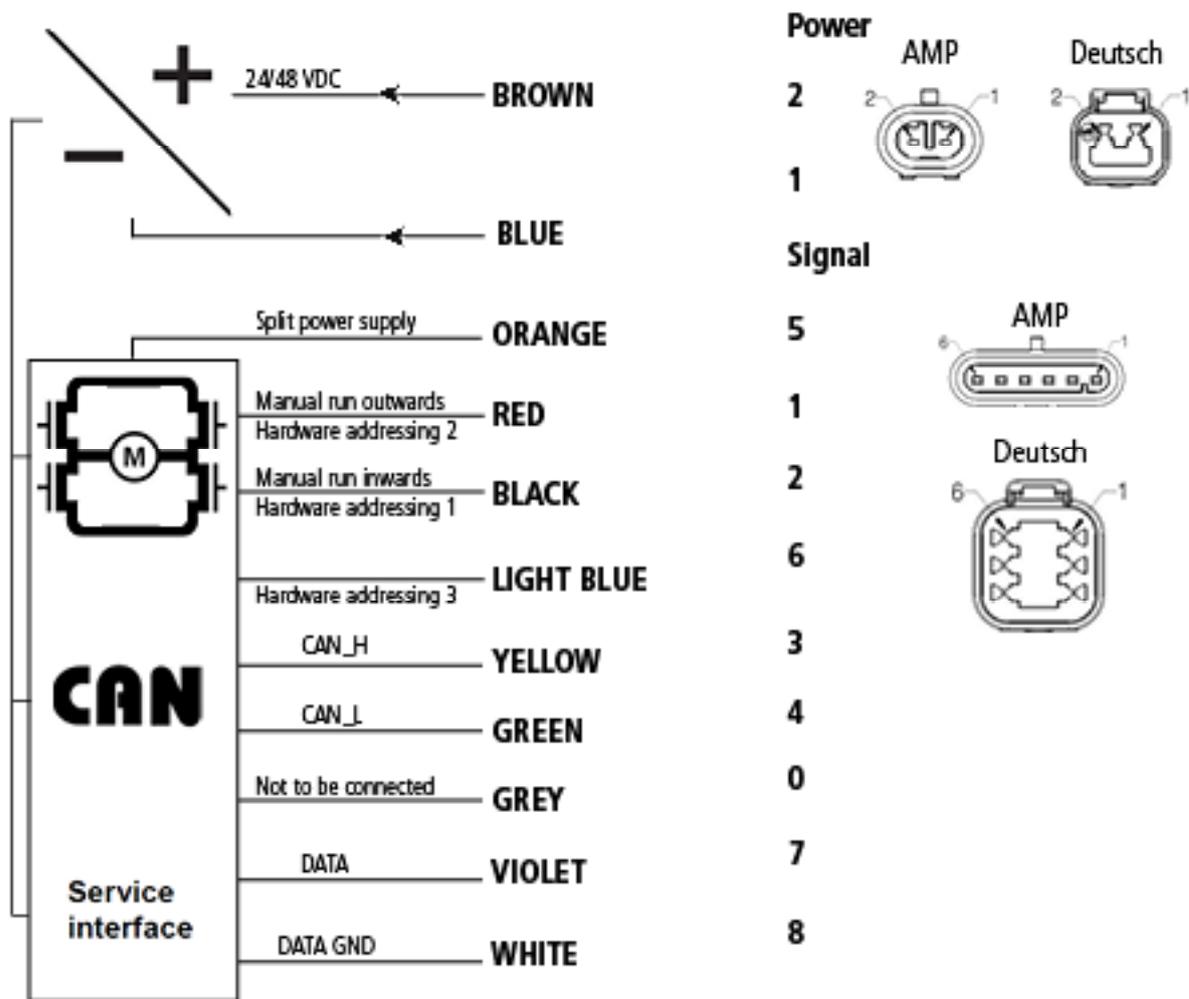
<b>Monitoring</b>					
Temperature monitoring	√	√	√	Add on	√
Current cut-off	√	√	√	Add on	√

<b>Supporting PC tool</b>					
BusLink™	√	√	-	-	-
Actuator Connect™	-	-	√	√	√
Real time graphs	√	√	√	√	√
Actuator status (error)	√	√	√	√	√
Historic usage data	√	√	-	Add on	√

# Actuator with CANbus (J1939) Hardware Addressing

## Connection diagram:

Fig. 16 : 36xxxxxxxxxA7xx=xxxxxxxxxxxx



Please be aware that if the power supply is not properly connected, you might damage the actuator!



CAN bus actuators are produced and delivered in the inner endstop position.

**The BusLink2 software tool is available for CAN bus and can be used for:** Diagnostics, manual run and configuration.

BusLink LIN is only intended for service interface.

Download BusLink software here: <https://www.linak.com/products/accessories/buslink-software/>

For more information and easy set-up of BusLink, please follow this link to view the Quick Guide for BusLink:

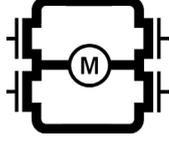
<https://www.linak.com/products/accessories/buslink-software/#/brochuresmanuals>

Please note that the BusLink cables must be purchased separately from the actuator!

Item number for BusLink cable kit: 0367996 (adaptor + USB2Lin)

## Actuator with CANbus (J1939) Hardware Addressing

### I/O specifications:

Input/Output	Specification	Comments																			
Description	<p>Compatible with the SAE J1939 standard. Uses CAN messages to command movement, setting parameters and to deliver feedback from the actuator.</p> <p>Actuator identification is provided, using standard J1939* address claim or fixed addresses.</p> <p>See connection diagram, figure above</p>																				
Brown	24-48 VDC + (VCC) Connect Brown to positive	<p>Note: Do not swap the power supply polarity on the brown and blue wires! The PCB is coupled to the housing through a capacitor. Current limit levels can be adjusted through BusLink. If the temperature drops below 0 °C, all current limits will automatically increase with a factor 2.</p>																			
	<table border="1"> <thead> <tr> <th>Vsup</th> <th>Vmin</th> <th>Vmax</th> <th></th> </tr> </thead> <tbody> <tr> <td rowspan="2">24 V</td> <td>16 V</td> <td>36 V</td> <td>Motor running</td> </tr> <tr> <td>10 V</td> <td>60 V</td> <td>Motor not running CAN communication possible</td> </tr> <tr> <td rowspan="2">48 V</td> <td>34 V</td> <td>58 V</td> <td>Motor running</td> </tr> <tr> <td>24 V</td> <td>60 V</td> <td>Motor not running CAN communication possible</td> </tr> </tbody> </table>			Vsup	Vmin	Vmax		24 V	16 V	36 V	Motor running	10 V	60 V	Motor not running CAN communication possible	48 V	34 V	58 V	Motor running	24 V	60 V	Motor not running CAN communication possible
	Vsup			Vmin	Vmax																
	24 V			16 V	36 V	Motor running															
				10 V	60 V	Motor not running CAN communication possible															
	48 V			34 V	58 V	Motor running															
24 V		60 V	Motor not running CAN communication possible																		
24 V, current limit 13 A 48 V, current limit 8 A																					
Blue	- (GND) Connect Blue to negative																				
Orange	<p>Split supply: 24VDC with ≈28mA current consumption 48VDC with ≈16mA current consumption Connect to positive. The split supply uses the common GND from the power supply</p>	Split supply is for operational power only.																			
Red	Extends the actuator/ Hardware addressing (2)	Manual run If not connected to VCC at startup:	HW addressing When used for Hardware addressing connect to VCC or negative (GND)																		
Black	Retracts the actuator/ Hardware addressing (1)	<p>The signal becomes active at: &gt; 67% of <math>V_{IN}</math> = ON</p> <p>The signal becomes inactive at: &lt; 33% of <math>V_{IN}</math> = OFF</p>																			
Light Blue	HW addressing (3)	When used for Hardware addressing connect to VCC or negative (GND)																			
Green	CAN_L	<p>The LA36 with CAN bus does not contain the 120Ω terminal resistor. The physical layer is in accordance with J1939-15.* Speed: Autobaud up to 500 kbps (Prototypes: 250 kbps) Max bus length: 40 meters Max stub length: 3 meters Max node count: 10 (can be extended to 30 under certain circumstances) Wiring: Unshielded twisted pair</p>																			
Yellow	CAN_H																				
Violet	Service interface	Only BusLink can be used as service interface.																			
White	Service interface GND	Use grey adapter cable																			



\* J1939-15 refers to Twisted Pair and Shielded cables. The standard/default cables delivered with LA36 CANbus do not comply with this.

Find more information about the CANbus actuators in the CANbus user manual

## Actuator with CANbus (J1939) Hardware Addressing

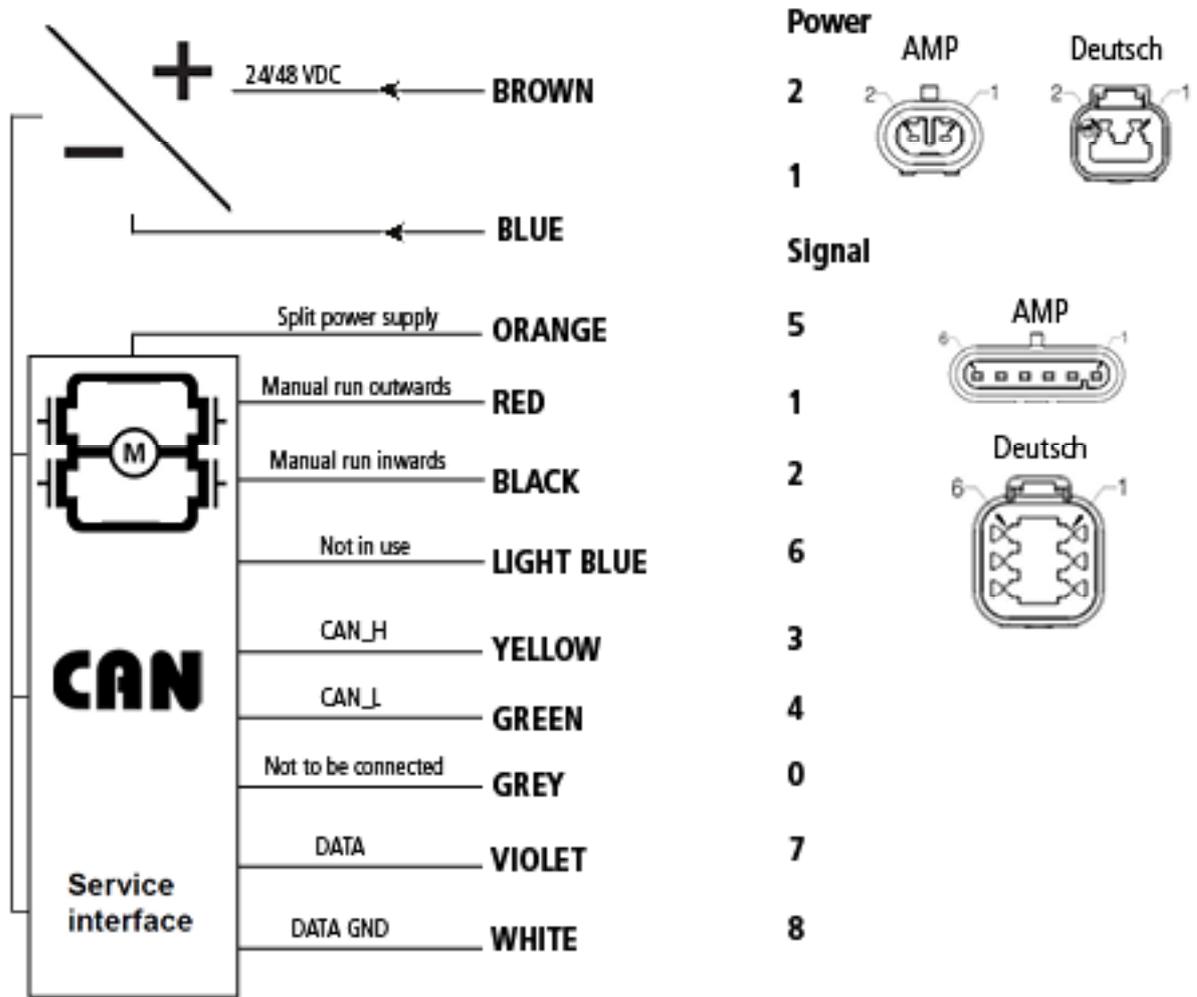
Address pin specifications:

Pin Setting			Address	Function instance
Address pin 1 Black	Address pin 2 Red	Address pin 3 Light Blue		
Open	Open	Open	Manual Run Mode	N/A
High	High	High	0X80 (128)	7
High	High	Open	0X81 (129)	6
High	Open	High	0X82(130)	5
High	Open	Open	0X83 (131)	4
Open	High	High	0X84 (132)	3
Open	High	Open	0X85 (133)	2
Open	Open	High	0X86 (134)	1

# Actuator with CANbus (J1939) Software Addressing

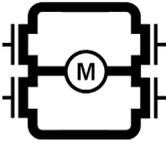
I/O specifications:

Fig. 16 : 36xxxxxxxxxA7xx=xxxxxxxxxxxx



## Actuator with CANbus (J1939) Software Addressing

### I/O specifications:

Input/Output	Specification	Comments
Description	Compatible with the SAE J1939 standard. Uses CAN messages to command movement, setting parameters and to deliver feedback from the actuator. See the LINAK CAN bus user manual. Actuator identification is provided, using standard J1939 SW addressing. See connection diagram, figure above	
Brown	24-48 VDC + (VCC) Connect Brown to positive	Note: Do not swap the power supply polarity on the brown and blue wires! The PCB is coupled to the housing through a capacitor. Current limit levels can be adjusted through BusLink. If the temperature drops below 0 °C, all current limits will automatically increase with a factor 2.
	Vsup   Vmin   Vmax	
	24 V   16 V   36 V   Motor running	
	10 V   60 V   Motor not running CAN communication possible	
	48 V   34 V   58 V   Motor running	
24 V   60 V   Motor not running CAN communication possible		
	24 V, current limit 13 A 48 V, current limit 8 A	
Blue	- (GND) Connect Blue to negative	
Orange	Split supply: 24 VDC with ≈28 mA current consumption 48 VDC with ≈16 mA current consumption Connect to positive. The split supply uses the common GND from the power supply	Split supply is for operational power only.
Red	Extends the actuator	The signal becomes active at: > 67% of $V_{IN}$ = ON
Black	Retracts the actuator	The signal becomes inactive at: < 33% of $V_{IN}$ = OFF
Light Blue	Not to be used	Not to be used
Green	CAN_L	LA36 with CAN bus does not contain the 120 Ω terminal resistor. The physical layer is in accordance with J1939-15. * Speed: Autobaud up to 500 kbps Max bus length: 40 meters Max stub length: 3 meters
Yellow	CAN_H	Max node count: 10 (can be extended to 30 under certain circumstances) Wiring: Unshielded twisted pair
Violet	Service interface	Only BusLink can be used as service interface.
White	Service interface GND	Use grey adapter cable



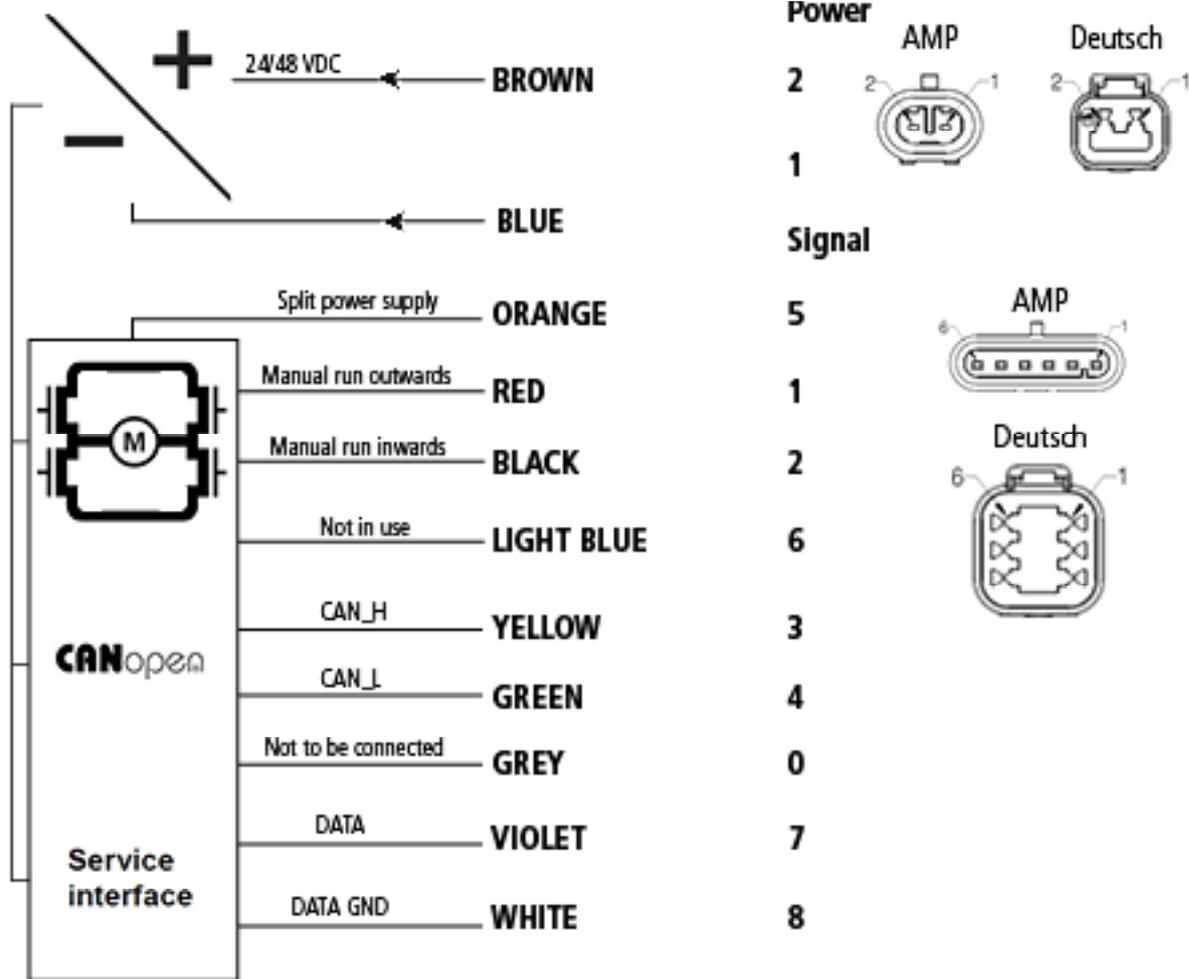
\* J1939-15 refers to Twisted Pair and Shielded cables. The standard/default cables delivered with LA36 CANbus do not comply with this.

Find more information about the CANbus actuators in the CANbus user manual  
The newest version is available online at [LINAK.COM/TECHLINE](http://LINAK.COM/TECHLINE)

## Actuator with CANopen:

### Connection diagram:

Fig. 17 : 36xxxxxxxxxxA8xx=xxxxxxxxxxxxx



Please be aware that if the power supply is not properly connected, you might damage the actuator!



CANopen actuators are produced and delivered in the inner endstop position.

In case the customer needs the CANopen actuators to be delivered in another endstop position, this will be possible by generating a special item number.

### The BusLink2 software tool is available for CANopen and can be used for:

Diagnostics, manual run and configuration.

Download BusLink software here: <https://www.linak.com/products/accessories/buslink-software/>

For more information and easy set-up of BusLink, please read the User Guide for BusLink which can be downloaded from the Media Library.

(The file is named: techline-buslink-quick-guide-brochure-eng.pdf)

## Actuator with CANbus (CANopen):

### I/O specifications:

Input/Output	Specification	Comments																		
Description	Compatible with the CiA 301 standard. Using CANopen messages to command movement, setting parameters and to deliver feedback from the actuator. Actuator support LSS																			
Brown	24-48 VDC + (VCC) Connect Brown to positive <table border="1" data-bbox="343 698 858 969"> <thead> <tr> <th>Vsup</th> <th>Vmin</th> <th>Vmax</th> <th></th> </tr> </thead> <tbody> <tr> <td rowspan="2">24 V</td> <td>16 V</td> <td>36 V</td> <td>Motor running</td> </tr> <tr> <td>10 V</td> <td>60 V</td> <td>Motor not running CAN communication possible</td> </tr> <tr> <td rowspan="2">48 V</td> <td>34 V</td> <td>58 V</td> <td>Motor running</td> </tr> <tr> <td>24 V</td> <td>60 V</td> <td>Motor not running CAN communication possible</td> </tr> </tbody> </table> 24V, current limit 13 A 48V, current limit 8 A	Vsup	Vmin	Vmax		24 V	16 V	36 V	Motor running	10 V	60 V	Motor not running CAN communication possible	48 V	34 V	58 V	Motor running	24 V	60 V	Motor not running CAN communication possible	Note: Do not swap the power supply polarity on the brown and blue wires! The PCB is coupled to the housing through a capacitor. Current limit levels can be adjusted through BusLink. If the temperature drops below 0 °C, all current limits will automatically increase with a factor 2.
Vsup	Vmin	Vmax																		
24 V	16 V	36 V	Motor running																	
	10 V	60 V	Motor not running CAN communication possible																	
48 V	34 V	58 V	Motor running																	
	24 V	60 V	Motor not running CAN communication possible																	
Blue	- (GND) Connect Blue to negative																			
Orange	Split supply: 24 VDC with ≈28 mA current consumption 48 VDC with ≈16 mA current consumption Connect to positive. The split supply uses the common GND from the power supply	Split supply is for operational power only.																		
Red	Extends the actuator	The signal becomes active at: > 67% of $V_{IN}$ = ON																		
Black	Retracts the actuator	The signal becomes inactive at: < 33% of $V_{IN}$ = OFF Input current: 10 mA																		
Light Blue	Not to be used	Not to be used																		
Green	CAN_L	CANopen assumes a physical layer according to ISO 11898-2. Speed: Autobaud up to 500 kbps Max bus length @ 125 kbps: 500 meters Max bus length @ 250 kbps: 250 meters Max bus length @ 500 kbps: 100 meters Max stub length @ 125 kbps: 22 meters Max stub length @ 250 kbps: 11 meters Max stub length @ 500 kbps: 5,5 meters Max node count: 127 Wiring: Unshielded twisted pair																		
Yellow	CAN_H																			
Violet	Service interface	Only BusLink can be used as service interface. Use grey adapter cable																		
White	Service interface GND																			



Find more information about the CANopen actuators in the CANopen user manual  
The newest version is available online at [LINAK.COM/TECHLINE](http://LINAK.COM/TECHLINE)

\* CiA 301 refers to Twisted Pair and Shielded cables. The standard/default cables delivered with the CANopen enabled actuator do not comply with this.

**The BusLink2 software tool is available for CANopen and can be used for:**

Diagnostics, manual run and configuration.

BusLink LIN is only intended for BusLink service interface.

Download BusLink software here: <https://www.linak.com/products/accessories/buslink-software/>

For more information and easy set-up of BusLink, please read the User Guide for BusLink which can be downloaded from the Media Library.

(The file is named: techline-buslink-quick-guide-brochure-eng.pdf)



Please note that the BusLink cables (0367996) must be purchased separately from the actuator!

Find more information about the CANopen actuators in the CANopen user manual  
The newest version is available online at [LINAK.COM/TECHLINE](http://LINAK.COM/TECHLINE)

## TECHLINE cables

Purpose	Plug type	Article No.	Material	# Wires	Size	Colour	Length (mm)	Cable type
Signal	Flying leads*	0368539-1500	PVC	9	20 AWG	Black	1500	Straight
Signal	Flying leads*	0368539-5000	PVC	9	20 AWG	Black	5000	Straight
Power	Flying leads*	0367046-1500	PVC	2	14 AWG	Black	1500	Straight
Power	Flying leads*	0367046-5000	PVC	2	14 AWG	Black	5000	Straight

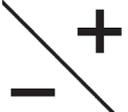
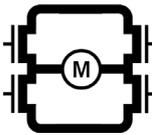
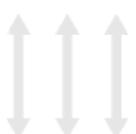
\*The cables are delivered with plugs, which are to be cut off to have the flying leads.

# Actuator with I/O Basic

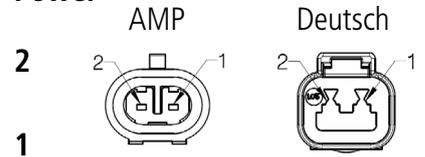
## I/O specifications:

### Connection diagram:

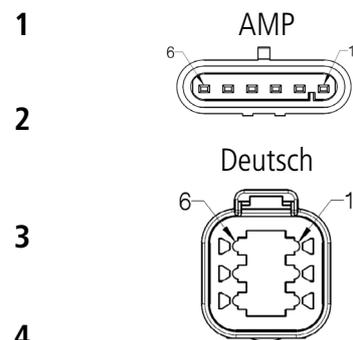
36XXXXXXXXXA3XXX=XXXXXXXXXXXXXXXXXX

 POWER SUPPLY	24/48 VDC +	<b>BROWN</b>	
	GND -	<b>BLUE</b>	
 RUN SIGNAL	Digital input	<b>RED</b>	Manual run Outwards
	Digital input	<b>BLACK</b>	Manual run Inwards
 OUTPUTS	Digital output	<b>YELLOW</b>	End stop reached outwards
	Digital output	<b>GREEN</b>	End stop reached inwards
 INPUT/OUTPUT	Analog output + or Digital input	<b>ORANGE</b>	0 Not used
	Analog output - or Digital input	<b>LIGHT BLUE</b>	0 Not used
 PARALLEL	Parallel	<b>PURPLE</b>	0 Not used
	Parallel GND	<b>WHITE</b>	0 Not used
 BLUETOOTH®	Bluetooth® Antenna	<b>GREY</b>	0 Bluetooth® interface for PC tool

### Power



### Signal



Compliant with:



Not used\*: The I/O Basic actuator can be upgraded to I/O Full, if more functionality is needed - even after purchase. Connect the actuator to Actuator Connect™ via Bluetooth® or a USB adapter cable (must be purchased separately), and request an unlock key from your local LINAK office.

Input/Output	Specification	Comments
Description	IC - IO is a universal industrial interface developed by LINAK®. IO is a common term used, to describe inputs and outputs As part of the IC (Integrated Controller) range, the IC - IO interface is offering a range of digital and analog in- and outputs. It can be deployed through all industries.	
Brown	24-48 VDC + (VCC) 24V current limit 13 A 48V current limit 8 A	Note: Do not swap the power supply polarity on the brown and blue wires! The PCB is coupled to the housing through a capacitor If the temperature drops below 0 °C, all current limits will automatically increase with a factor 2.
Blue	- (GND) Connect Blue to negative	
Red	Extends the actuator -Standard run	The signal becomes active at > 67% of $V_{IN}$ = ON
Black	Retracts the actuator -Standard run	The signal becomes inactive at: < 33% of $V_{IN}$ = OFF Input current: 10 mA
Yellow	Digital position output - End stop reached (outwards)	Digital outputs: The digital output is active high - Output voltage min. $V_{IN}$ - 2 V - Source current max. 100 mA
Green	Digital position output - End stop reached (inwards)	
Orange	Not to be used	Actuator can be upgraded to Full version - wire is then used as either an analog output or digital input.
Light Blue	Not to be used	Actuator can be upgraded to Full version - wire is then used as either an analog output or digital input.
Purple	Not to be used	Actuator can be upgraded to Full version - wire is then used as parallel communication
White	Not to be used	Actuator can be upgraded to Full version - wire is then used as parallel common GND
Grey	Antenna for Bluetooth®	The grey wire is used to strengthen the Bluetooth signal, allowing a stable wireless connection and has no functionality during operation.

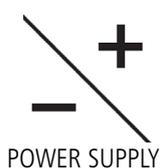


Find more information about the IC - IO actuators in the IC - IO user manual  
The newest version is available online at [LINAK.COM/TECHLINE](https://www.linak.com/TECHLINE)

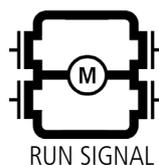
# Actuator with I/O Customised or Full

## Connection diagram:

36XXXXXXXXXC3XXX=XXXXXXXXXXXXXXXXXX  
F3



24/48 VDC + **BROWN**  
GND - **BLUE**



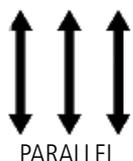
Digital input **RED**  
Manual run Outwards  
Digital input **BLACK**  
Manual run Inwards



Digital output **YELLOW**  
End stop reached outwards  
Digital output **GREEN**  
End stop reached inwards



Analog output +  
or Digital input **ORANGE**  
Not used or customisable\*  
Analog output -  
or Digital input **LIGHT BLUE**  
Not used or customisable\*



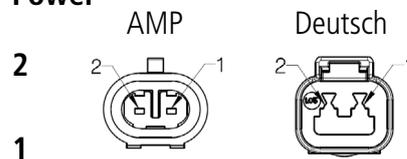
Parallel **PURPLE**  
Not used or customisable\*  
Parallel GND **WHITE**  
Not used or customisable\*



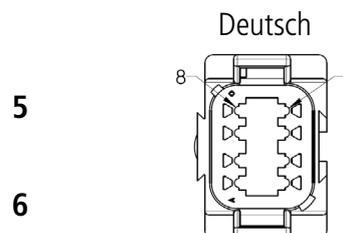
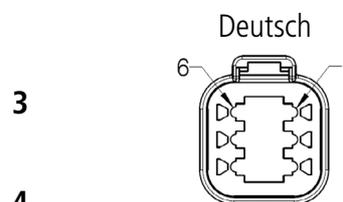
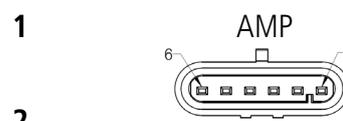
BLUETOOTH®

Bluetooth® Antenna **GREY**  
Bluetooth® interface for PC tool

## Power



## Signal



7 (Alt 5)\*\*

8 (Alt 6)\*\*

0

Compliant with:

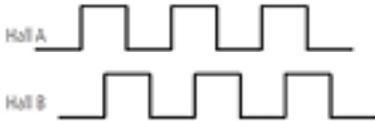
**PLUS E1**  
Powered by Danfoss



\* Customisable: The I/O Full actuator is configured like an I/O Basic from factory, but with full access to all features. Connect the actuator to Actuator Connect™ via Bluetooth® or a USB adapter cable (must be purchased separately), to enable and configure various features.

Please note: The I/O Customised actuator is configured based on customer needs - for detailed information about functionality, please see the [auto-generated data sheet](#) (type in J-number from product label).

\*\* If input/output are not used and a 6-pin connector is chosen, the alternative pins are used.

Input/Output	Specification	Comments
Description	IC - IO is a universal industrial interface developed by LINAK®. IO is a common term used, to describe inputs and outputs As part of the IC (Integrated Controller) range, the IC - IO interface it is offering a range of flexible digital and analog in- and outputs. It can be deployed through all industries.	
Brown	24-48 VDC + (VCC) Connect Brown to positive 24V current limit 13 A 48V current limit 8 A	Note: Do not swap the power supply polarity on the brown and blue wires! The PCB is coupled to the housing through a capacitor Current limit levels can be adjusted through BusLink. If the temperature drops below 0 °C, all current limits will automatically increase with a factor 2.
Blue	-(GND) Connect Blue to negative	
Red	Extends the actuator features*: -Standard run (Default for Full version) -impulse run -Servo (+) -Proportional (+)	The signal becomes active at: $\geq 67\%$ of $V_{IN}$ = ON The signal becomes inactive at: $\leq 33\%$ of $V_{IN}$ = OFF Input current: 10 mA
Black	Retracts the actuator features*: -Standard run (Default for Full version) -impulse run -Servo (-) -Proportional (-)	
Yellow	Digital position output features*: - End stop reached (outwards) (Default for Full version) - End stop zone reached (outwards) - Actuator running - Constantly low - Constantly high - Single hall XOR - Dual hall (A)	Digital outputs: The digital outputs are either active high or active low, depending on the preferred signal type. - Output voltage min. $V_{IN} - 2$ V - Source current max. 100 mA  Single hall XOR:
Green	Digital position output features*: - End stop reached (inwards) (Default for Full version) - End stop zone reached (inwards) - Actuator running - Constantly low - Constantly high - Single hall XOR - Dual hall (B)	Dual hall: 



\* **Customisable:** The IO Customised actuator is configured based on customer needs - for detailed information about wire functionality, please see the [auto-generated data sheet](#) (type in J-number from product label).

The IO Full actuator is configured like an IO Basic from factory, but with full access to all features. Connect the actuator to Actuator Connect™ via Bluetooth® or a USB adapter cable (must be purchased separately), to enable and configure various features.

Orange	Analog output or Digital input feature*: -Analog feedback (+) -Predefined position 1 -Run condition	Customisable or not used (Default for Full version)
Light Blue	Analog output or Digital input features*: -Analog feedback (-) -Predefined position 2	Customisable or not used (Default for Full version)
Violet	Parallel communication*	Customisable or not used (Default for Full version) The Parallel drive function will support up to 8 actuators running simultaneously. It is possible to run parallel with a main power supply or separate power supplies
White	Parallel common GND	Only to be connected to other Parallel GND and only in parallel systems
Grey	Antenna for Bluetooth*	The grey wire is used to strengthen the Bluetooth signal, allowing a stable wireless connection and has no functionality during operation.



\* **Customisable:** The I/O Customised actuator is configured based on customer needs - for detailed information about wire functionality, please see the [auto-generated data sheet](#) (type in J-number from product label).

The I/O Full actuator is configured like an I/O Basic from factory, but with full access to all features. Connect the actuator to Actuator Connect™ via Bluetooth® or a USB adapter cable (must be purchased separately), to enable and configure various features.

# Chapter 3

## Troubleshooting

Symptom	Possible cause	Action
<b>Motor runs but spindle does not move</b>	Gearing system or spindle damaged	Please contact LINAK
<b>No motor sound or movement of piston rod</b>	The actuator is not properly connected to the power supply	Check the connection to the power supply or the external control unit (if any)
	Customer fuse burned	Check the fuse
	Cable damaged	Change the cable
	<u>For IC only:</u> Wrongly connected	<u>For IC only:</u> <b>Please make sure that the power supply polarity is properly connected, otherwise you might damage the actuator</b> Check the wire connection on the internal control unit
<b>Excessive power consumption</b>	Misalignment or overload in the application	Align or reduce the load
		Try to run the actuator without load
<b>Actuator cannot lift full load or motor runs too slowly</b>	Misalignment or overload in the application	Align or reduce the load
		Try to run the actuator without load
	Insufficient power supply	Check the power supply
	<u>For IC only:</u> Internal current limit reached Actuator speed is too low	<u>For IC only:</u> Connect the actuator to BusLink and check the existing parameters

## Troubleshooting

Symptom	Possible cause	Action
<b>No signal or incorrect feedback output</b>	Cable damaged	Change the cable
	Wrongly connected	Check the wiring
	Signal is constantly high/low	Run the actuator to fully extended and retracted positions
	Feedback output overloaded	Reduce the load according to your chosen feedback type
	<u>For IC only:</u> Incorrect feedback output/level	<u>For IC only:</u> Connect the actuator to BusLink and check for correct feedback option
<b>Actuator runs in smaller steps</b>	Insufficient power supply	Check the power supply
	Load is higher than specified	Reduce the load
	<u>For IC only:</u> Internal safety procedure activated	<u>For IC only:</u> Connect the actuator to BusLink and check the following: - Reason for last stop - Current cut-off levels in both directions
<b>Actuator cannot hold the chosen load</b>	Load is higher than specified	Reduce the load



For further assistance, please contact your local LINAK supplier.

## BusLink service counter - Reason for last stop

Possible cause	Action/Info
H-bridge error Internal SMPS error	<ul style="list-style-type: none"> <li>Please contact your local LINAK supplier for further instructions</li> </ul>
Overcurrent	<ul style="list-style-type: none"> <li>The actuator(s) cannot continue in the same direction</li> <li>Reactivation is needed in the opposite direction</li> </ul>
ESS error	<ul style="list-style-type: none"> <li>Please contact your local LINAK supplier</li> </ul>
Hall error	<ul style="list-style-type: none"> <li>The actuator(s) stop. When seeing hall error, the actuator goes into 'position lost', and the whole system will need initialisation</li> <li> Find more info on the initialisation procedure below</li> </ul>
Out of range temperature for ambient location Out of range temperature at FET location The above can be due to high environment temperature or high duty cycle	<ul style="list-style-type: none"> <li>The error causes the actuator(s) to stop. After elimination of the error (cooling down) and reactivation of the movement, the actuator(s) will move normally</li> <li><b>This may not be used for stopping the actuator(s)</b></li> </ul>
Overvoltage	<ul style="list-style-type: none"> <li>When detecting overvoltage, the actuator(s) stop. The actuator(s) remain stopped until the error condition is removed. To remove the error condition, the voltage level must be below (38V for 24 V actuators and 58 V for 48 V actuators) and the Run In/Run Out signals must be removed before the next movement</li> </ul>
Undervoltage	<ul style="list-style-type: none"> <li>When detecting undervoltage, the actuator(s) stop. The actuator(s) remain stopped until the error condition is removed. To remove the error condition, the voltage level must be above 8V and the Run In/Run Out signals must be removed before the next movement</li> </ul>



### Initialisation procedure:

To initialise the actuator(s), move each actuator into fully extended and fully retracted position. Either initialise the actuators one at a time through BusLink, or use the Parallel manual service mode. In case the initialisation does not solve the issue, please contact your local LINAK supplier



For more information and easy set-up of BusLink, please follow this link to view the Quick Guide for BusLink: <https://www.linak.com/products/accessories/buslink-software/#/brochuresmanuals>

# Chapter 4

## Specifications

Motor:	Brushed & brushless motors 24 V or 48 V
Cable:	Motor: 2 x 14 AWG PVC cable Control: 9 x 20 AWG PVC cable
Gear ratio:	5 different gear ratios available in steel (500 N, 1,700/2,600 N, 4,500 N, and 6,800 N)
Current monitoring:	Current monitoring will ensure that the IC actuator stops in case of overload
Brake:	Integrated brake ensures a high self-locking ability. The brake is deactivated when the actuator is powered to obtain a high efficiency
Housing:	The housing is made of casted aluminium, coated for outdoor use and in harsh conditions
Spindle part:	Outer tube: Extruded aluminium anodised Inner tube: Stainless steel AISI304/SS2333 Acme spindle: Trapezoidal spindle with high efficiency
Temperature range:	- 30° C to +65° C - 22° F to +149° F Full performance +5° C to +40° C
End play:	2 mm maximum
Weather protection:	Rated IP66 for outdoor use. Furthermore, the actuator can be washed down with a high-pressure cleaner (IP69K)
Max. speed:	Up to 142 mm/sec. depending on load and spindle pitch
Noise level:	63,4dB (A) measuring method DS/EN ISO 3746 actuator not loaded in extend (BLDC) 64,2 dB (A) measuring method DS/EN ISO 3746 actuator not loaded in retract (BLDC) 73dB (A) measuring method DS/EN ISO 3746 actuator not loaded in extend (BDC) 73 dB (A) measuring method DS/EN ISO 3746 actuator not loaded in retract (BDC)

## Usage:

- Duty cycle at 600 mm stroke is max. 20% (4 min. drive and 16 min. rest)
- Duty cycle at 601-999 mm stroke is max. 15% (3 min. drive and 17 min. rest)
- Ambient operating temperature -30°C to +65°C, full performance from +5°C to +40°C
- Storage temperature: -55°C to +105°C

- **Safety device regarding functional failure:**

### Safety nut

The LA36 has a built-in safety nut in push as an option. Actuators with safety nut in push can only function when used in push applications. The safety nut comes into operation should the main nut fail. Afterwards it is only possible to drive the actuator into the innermost position. Thereafter, the actuator will not function any more and must be sent for service

### Mechanical endstop

LA36 is equipped with mechanical endstop

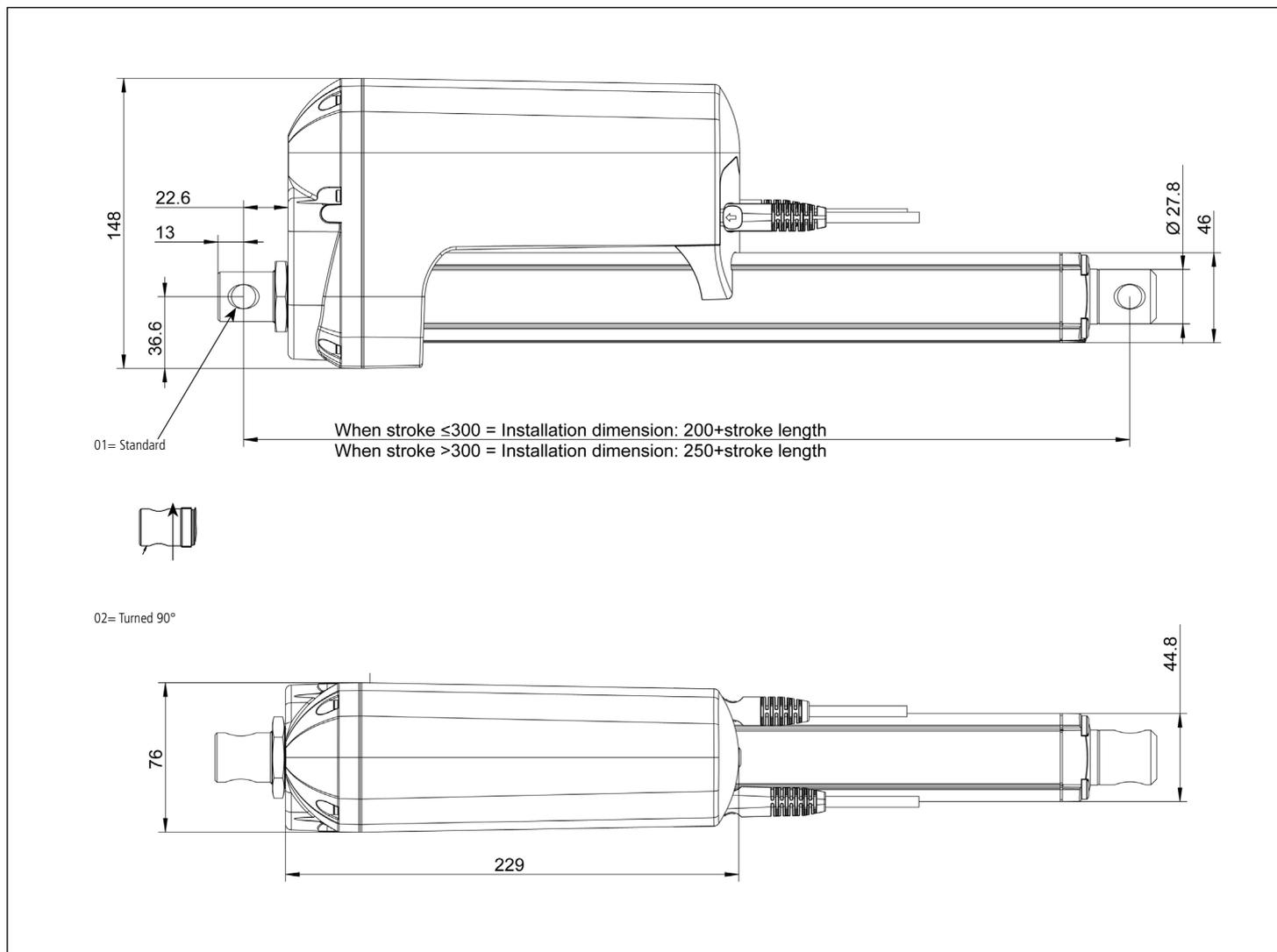
With Zero point the minimum stroke is 70 mm

The Zero point initialisation zone is located between 35-70 mm going from the most inward position.

The movement passing the zone has to be stable for the initialisation to succeed -also no virtual limits can be set in the initialisation zone.

# Actuator dimensions

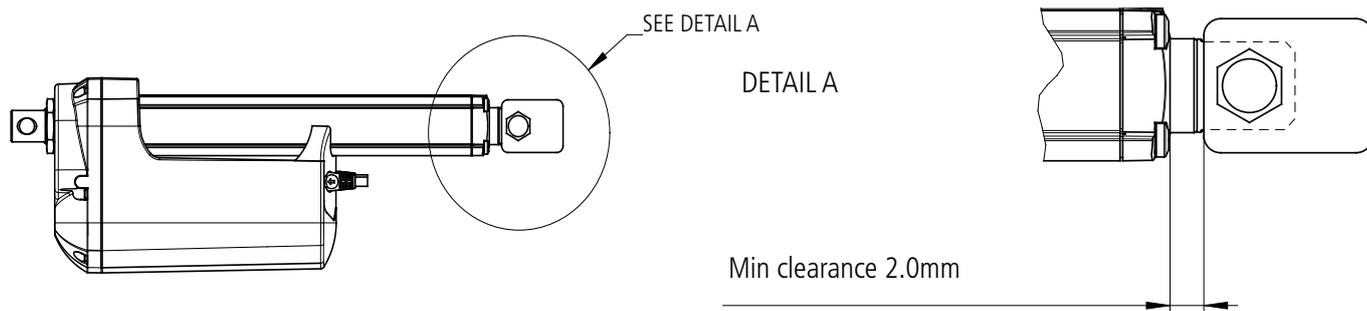
TECHLINE® LA36:



## Keep a clearance when mounting a bracket



When mounting a custom bracket on the moving part of the actuator, please observe the minimum clearance between bracket and cylinder top, when fully retracted, to avoid jamming and destruction of actuator drive train.



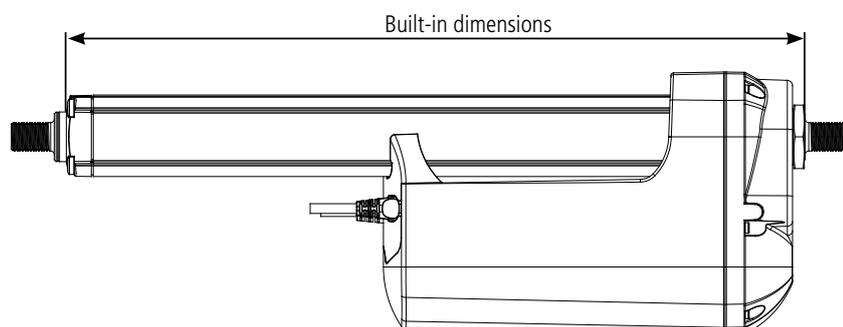
## Built-in dimensions

Piston rod	"0" /from the surface		"1" / to the centre of the hole		"2A" / to the centre of the hole		"3" / from the surface	
Back fixture	Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300	
"0" / from the surface	189	239	194	244	194	244	181	231
"1" and "2" / to the centre of the hole	195	245	200	250	200	250	187	237
"3" and "4" / to the centre of the hole	195	245	200	250	200	250	187	237
"5" / from the surface	180	230	185	235	185	235	173	223
"6" / from the surface	180	230	185	235	185	235	173	223
"7" and "8" / to the centre of the hole	195	245	200	250	200	250	187	237
"A" and "B" / to the centre of the hole	195	245	200	250	200	250	187	237
"C" and "D" / to the centre of the hole	195	245	200	250	200	250	187	237

Piston rod	"4" /from the surface		"5" / to the centre of the hole		"C" / to the centre of the hole		"D" / to the centre of the hole	
Back fixture	Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300		Stroke <=300 Stroke > 300	
"0" / from the surface	181	231	194	244	209	259	209	259
"1" and "2" / to the centre of the hole	187	237	200	250	215	265	215	265
"3" and "4" / to the centre of the hole	187	237	200	250	215	265	215	265
"5" / from the surface	172	222	185	235	200	250	200	250
"6" / from the surface	172*	222*	185	235	200	250	200	250
"7" and "8" / to the centre of the hole	187	237	200	250	215	265	215	265
"A" and "B" / to the centre of the hole	187	237	200	250	215	265	215	265
"C" and "D" / to the centre of the hole	187	237	200	250	215	265	215	265

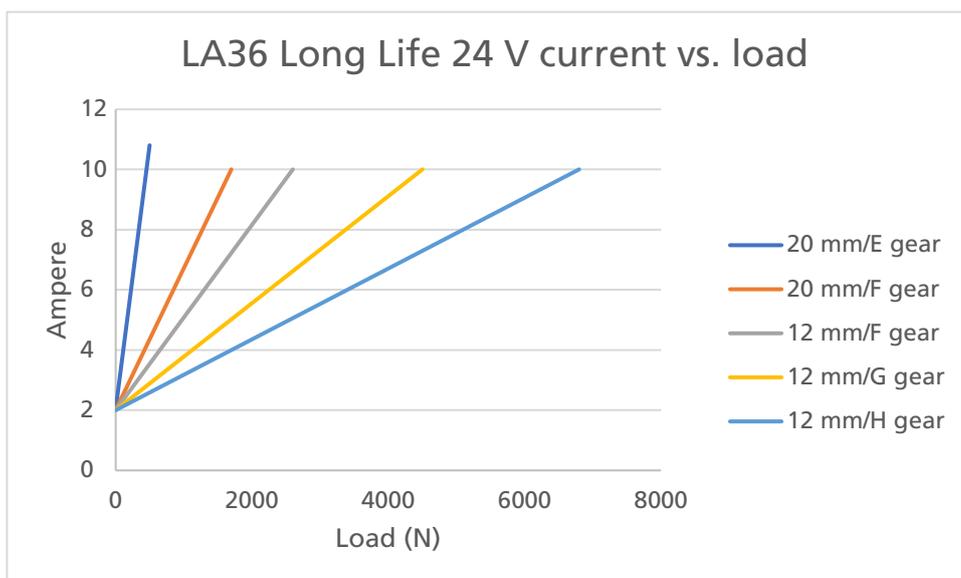
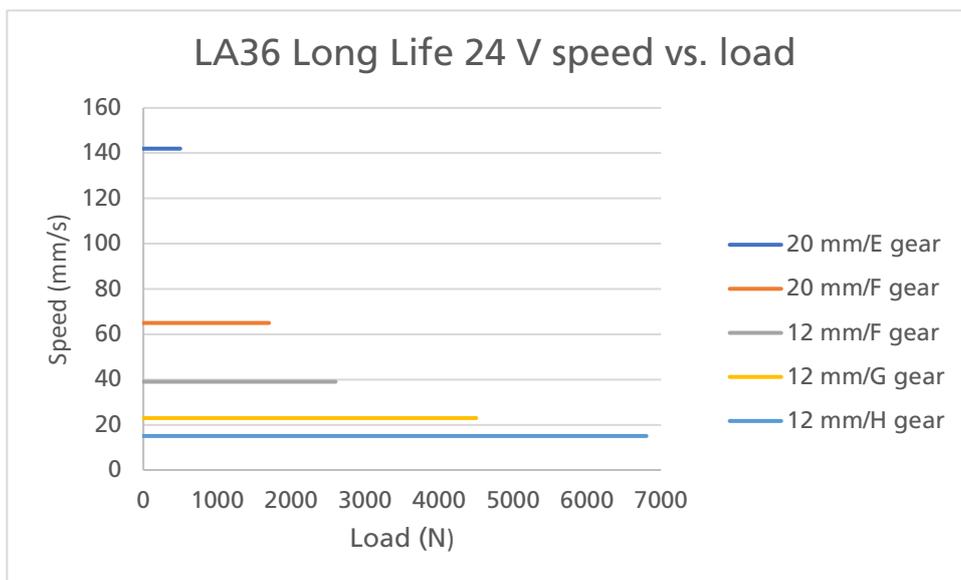
\* Please be aware that the above built-in dimensions refer to the 15-digit item number! For the 30 digit-item number please consult ECON.

-The built-in dimensions are measured according to the illustration below.



## Speed and current curves - 24V BLDC motor

The values below are typical values and made with a stable power supply and an ambient temperature of 20°C.



When ordering LA36 with E-gear

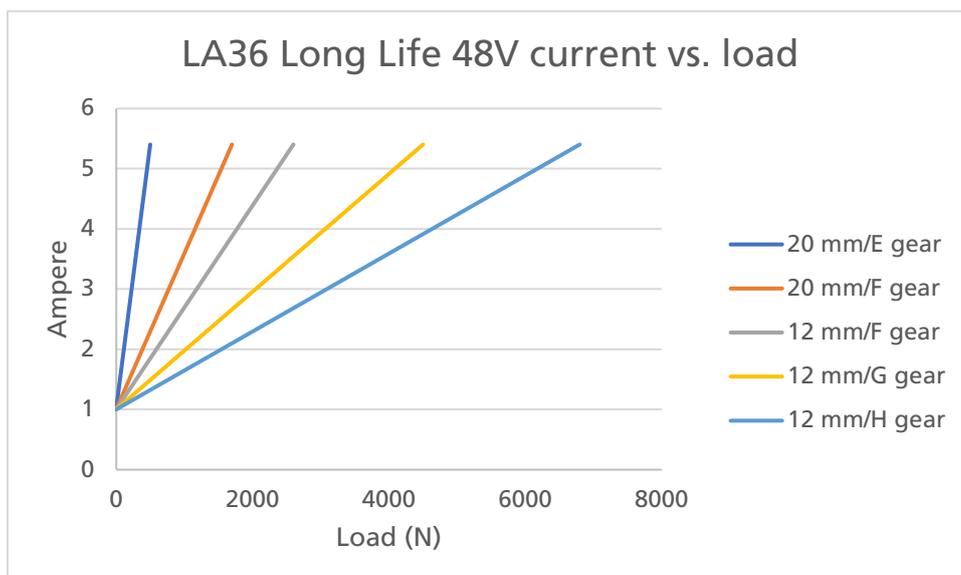
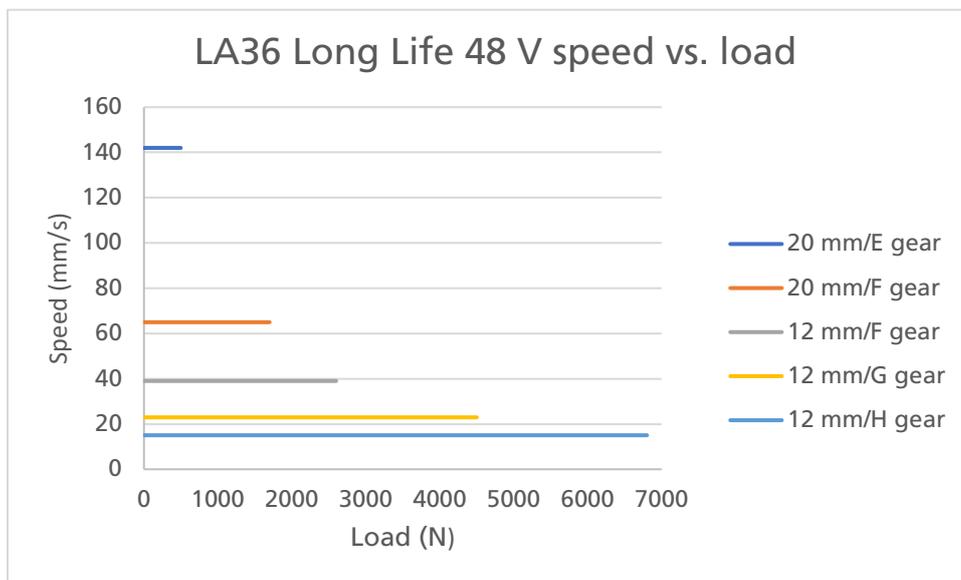
When purchasing the LA36 actuator with fast gear, the customer has been informed that the soft start and soft stop is used. If not, the actuator can run into hard stop, and inevitably damage the actuator.



All measurements above describe the spindle pitch (e.g. 20mm) and the gear type (e.g. E gear) of the actuator. Speed and current are based on a nominal power supply of 24 VDC.

## Speed and current curves - 48V BLDC motor

The values below are typical values and made with a stable power supply and an ambient temperature of 20°C.



When ordering LA36 with E-gear

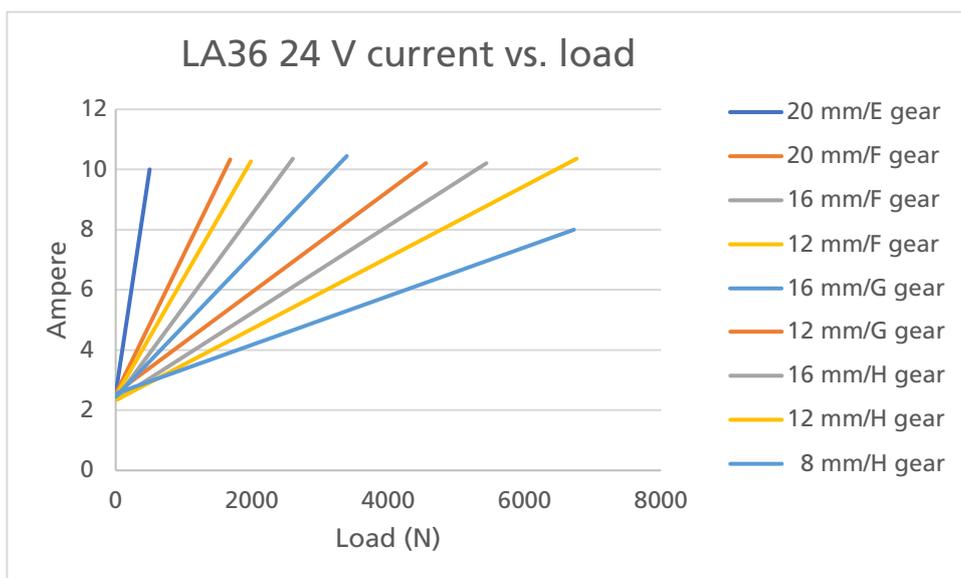
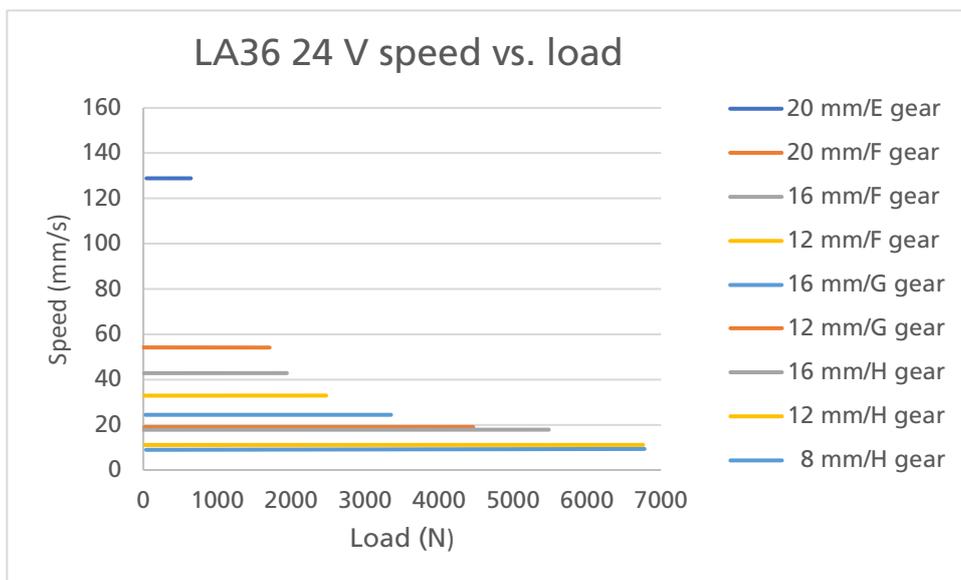
When purchasing the LA36 actuator with fast gear, the customer has been informed that the soft start and soft stop is used. If not, the actuator can run into hard stop, and inevitably damage the actuator.



All measurements above describe the spindle pitch (e.g. 20mm) and the gear type (e.g. E gear) of the actuator. Speed and current are based on a nominal power supply of 48 VDC.

## Speed and current curves - 24V brushed motor

The values below are typical values and made with a stable power supply and an ambient temperature of 20°C.



When ordering LA36 with E-gear

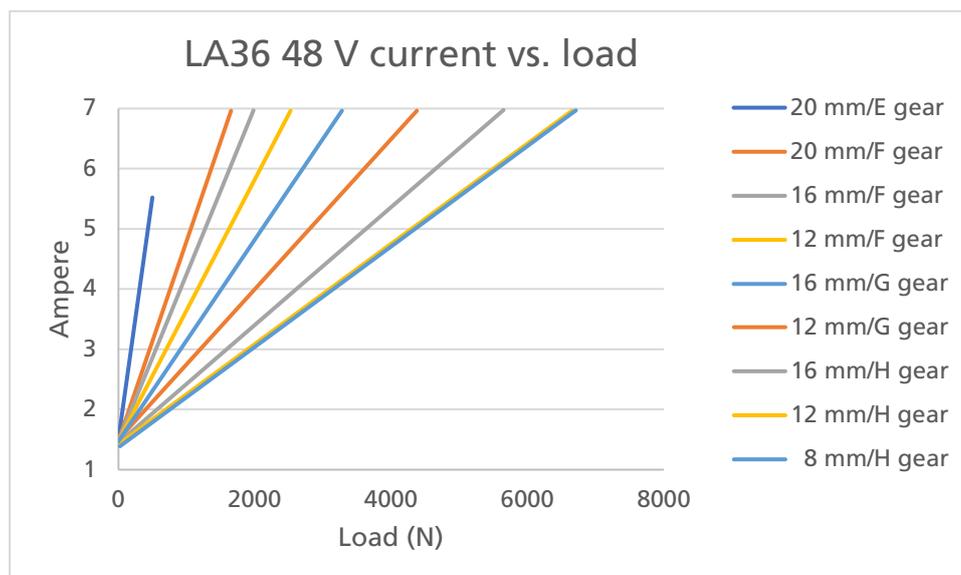
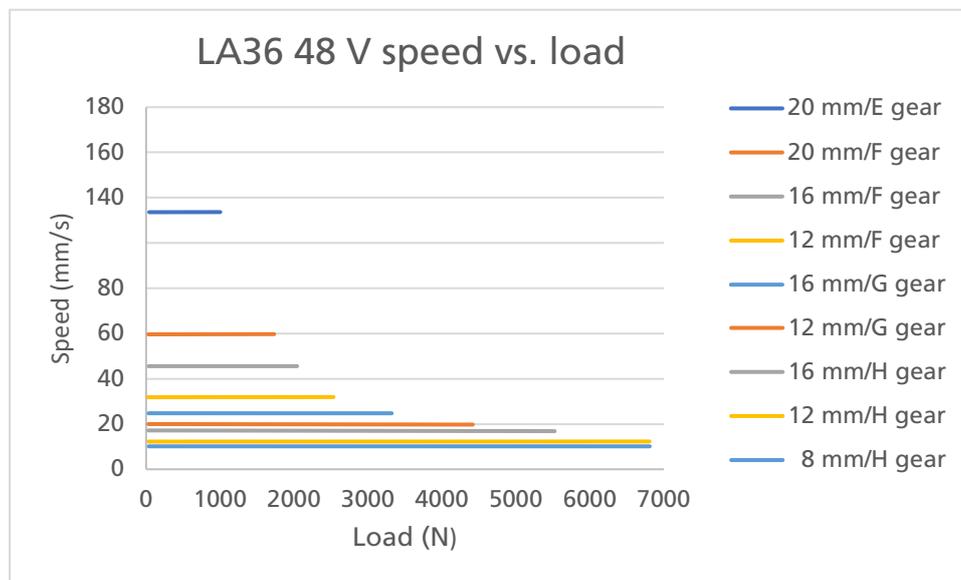
When purchasing the LA36 actuator with fast gear, the customer has been informed that the soft start and soft stop is used. If not, the actuator can run into hard stop, and inevitably damage the actuator.



All measurements above describe the spindle pitch (e.g. 20mm) and the gear type (e.g. E gear) of the actuator. Speed and current are based on a nominal power supply of 24 VDC.

## Speed and current curves - 48V brushed motor

The values below are typical values and made with a stable power supply and an ambient temperature of 20°C.



When ordering LA36 with E-gear

When purchasing the LA36 actuator with fast gear, the customer has been informed that the soft start and soft stop is used. If not, the actuator can run into hard stop, and inevitably damage the actuator.



All measurements above describe the spindle pitch (e.g. 20mm) and the gear type (e.g. E gear) of the actuator. Speed and current are based on a nominal power supply of 48 VDC.

## Label for LA36

**LINAK**® 

WE IMPROVE YOUR LIFE  
DESIGNED IN DENMARK  
Type : 36120250A001BA-646G304500X0000  
Item No. : J06292  
Prod. Date : 2015.11.09  
Max Load : Push 4500 N / Pull 4500 N IP66  
Power Rate: 24 V = / Max. 13 A  
Duty Cycle : 20%, Max. 4 min./16 min.  

 NOT TO BE OPENED BY UNAUTHORIZED PERSONNEL  
NE PAS OUVRIR PAR DU PERSONNEL NON AUTORISE

W/O #1234567-0001 MADE BY LINAK A/S DENMARK

Connection Diagram                      User Manual

**1. Type: 36120250A001BA-646G304500X0000**

Describes the basic functionality of the product

**2. Item no.: J06292**

Sales and ordering code

**3. Prod. Date: YYYY.MM.DD**

Production date describes when the product has been produced. This date is the reference for warranty claims

**4. Max Load: Push 4500N / Pull 4500N IP66**

Describes the maximum load that the product can be exposed to in compression and tension.

This line also contains a reference to the product's IP protection degree

**5. Power Rate: 24VDC / Max. 13 Amp**

Input voltage for the product and maximum current consumption

**6. Duty Cycle: 20%, Max. 4 min. / 16 min.**

The duty cycle defines the maximum period during operation without interruption. After operation, a pause must be observed. It is important that the operator follows the instructions of the duty cycle; otherwise, a possible overload may result in reduced product life/errors

**7. W/O #1234567-0001**

The LINAK work order followed by a unique sequential identification number

## Key to symbols

The following symbols are used on the LA36 labels:

Symbol	Norms	Approvals
	WEEE Directive 2002/96/EC	Wheelie bin
	Compliance to all relevant EC directives	CE
	Regulatory Compliance Mark: The Australian safety/EMC regulations	RCM
	China Pollution control mark (also indicates recyclability)	China RoHS legislation
	ISO 7000- 0434A: Caution	
	Operating instructions	

## Ordering example Econ

### **36 120 XXX A 0 A7 2 B = 6 1 6 G 3 0300 N C S 0 0 0**

Type:	<b>36</b>	= LA36		
Spindle type:	<b>080</b>	= 8 mm	<b>120</b>	= 12 mm***
	160	= 16 mm	200	= 20 mm***
Stroke length: ***	<b>XXX</b>	= mm (In steps of 5 mm) Minimum stroke length is 70 mm		
	Axx	= 10xx mm		
	Bxx	= 11xx mm		
	CXX	= 1200 mm		
Safety nut: ***	<b>0</b>	= None		
	<b>A</b>	= Safety nut		
Feedback:	<b>0</b>	= None***	<b>A</b>	= Hall Pontiometer V or mA****
	H	= Dual Hall****	K	= Single Hall XOR****
Platform: ***	<b>A6</b>	= LIN bus zero point*	<b>A7</b>	= CAN bus J1939 Zero point*
	A8	= CANopen Zero point*	A3	= I/O Basic
	C3	= I/O Customised	F3	= I/O Full
Motor type: ***	<b>2</b>	= 24 V DC w/o clutch	<b>4</b>	= 48 V DC w/o clutch
IP degree / Housing	<b>A</b>	= IP66 / Standard housing****	<b>B</b>	= IP66 / Longlife reinforced house***
	<b>6</b>	= IP66 / Reinforced house****	<b>9</b>	= IP66 / Harsh environment****
	<b>T</b>	= IP66 / ATEX/IECEx approved****		
Reed	-	= w/o Reed limit switch****	=	= BLDC***
Colour	<b>6</b>	= Dark Olivish gray NCS S7000-N**	***	
	X	= Special		
Back fixture: ***	<b>1</b>	= 0 degrees	<b>3</b>	= Ball eye
	<b>2</b>	= 90 degrees	<b>4</b>	= Outer thread
	<b>A</b>	= 30 degrees	<b>5</b>	= Inner thread
	<b>B</b>	= 60 degrees	<b>6</b>	= Rotated (30° Interval)
	<b>C</b>	= 120 degrees	<b>X</b>	= Special
	<b>D</b>	= 150 degrees		
Piston rod eye: ***	<b>1</b>	= With slot	<b>5</b>	= Inner thread
	<b>2</b>	= Solid	<b>6</b>	= Ball eye
	<b>4</b>	= Outer thread	<b>X</b>	= Special

\* If zero point is chosen together with an extended build in dimension, please be aware that the increase of the build in dimension is also the extra distance the actuator can travel if it loses pulses or it enters the "Position lost" state.

This means that enough space must be available in the application for this "extra" run.

If the actuator cannot get past the zero point in the outgoing direction, loss of pulses or "Position lost" will result in an actuator that must be removed from the application to be reinitialised.

The Zero point initialisation zone is between 35-70 mm going from the most inward position.

The movement passing the zone has to be in one continuously movement without changing speed or stopping for the initialisation to succeed -also no virtual limits can be set in the initialisation zone.

\*\* With Harsh environment the housing is Black

\*\*\* Long Life option

\*\*\*\* Option only available for I/O -(must be selected if BDC motor is requested).

Gear ratio: ***	E	= Gear ratio 1:7 (F-gear)	F	= Gear ratio 1:18 (A-gear)
	<b>G</b>	= Gear ratio 1:31 (B-gear)	H	= Gear ratio 1:46 (C-gear)
Brake: ***	1	= Push	2	= Pull
	<b>3</b>	= Push / Pull		
Install. diam.: ***	<b>0300</b>	= mm (min length)		
	XXXX	= mm		

Endstop signal: (ESS in/ESS out)*	A	= A_HIGH / A_HIGH****	B	= A_LOW / A_HIGH****
	C	= A_HIGH / A_LOW****	D	= A_LOW / A_LOW****
	<b>N</b>	= LOW / LOW***		

Plug type: ***	0	= None - Is to be chosen if cable and connectors is not wanted
	7	= AMP super seal - Moulded
	9	= Deutsch - Moulded
	<b>C</b>	= Flying leads - Is to be chosen if a connector is not wanted
	H	= AMP
	J	= Deutsch
	K	= AMP super seal
X	= Special	

Cable:	0	= None.	<b>S</b>	= Straight
	X	= Special		

Parallel mode:	<b>0</b>	= Non critical Parallel ***	2-8	= Crittical parallel (# of actuators) ****
----------------	----------	-----------------------------	-----	--

SW Config:	<b>0</b>	= Standard ***	X	= Special Configuration
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Not used: **0**

\* A\_High is active high and A\_LOW is active low. HIGH is constant high and LOW is constant low.

\*\*\* Long Life option

\*\*\*\* Option only available for I/O (must be selected if BDC motor is requested).

# Chapter 5

## Maintenance

- The actuator must be cleaned at regular intervals to remove dust and dirt and inspected for mechanical damages or wear.
- Inspect attachment points, wires, piston rod, cabinet, and plug, as well as check that the actuator functions correctly.
- To ensure that the pregreased inner tube remains lubricated, the actuator must only be washed down when the piston rod is fully retracted.
- The actuator is a closed unit and therefore requires no internal maintenance.
- In order to maintain a proper performance of the spherical eyes and to increase the resistance against environmental wear, we strongly recommend that the spherical eyes (ball bearings) mounted on actuators from LINAK are greased with anticorrosive grease or similar.

## Repair

Only an authorised LINAK® service centre should repair LINAK actuator systems. Systems to be repaired under warranty must be sent to an authorised LINAK service centre.

In order to avoid the risk of malfunction, all actuator repairs must only be carried out by an authorised LINAK Service shop or repairer, as special tools and parts must be used.

If a system is opened by unauthorised personnel there is a risk that it may malfunction at a later date.

## Main groups of disposal

LINAK's products may be disposed of, possibly by dividing them into different waste groups for recycling or combustion.

Product	Metal scrap	Cable scrap	Electronic scrap	Plastic recycling or combustion
LA36	X	X	X	X

We recommend that our product is disassembled as much as possible at the disposal and that you try to recycle it.

## Warranty

There is an 18 months' warranty on TECHLINE products against manufacturing faults calculated from the production date of the individual products (see label). LINAK's warranty is only valid in so far as the equipment has been used and maintained correctly and has not been tampered with. Furthermore, the actuator must not be exposed to violent treatment. In the event of this, the warranty will be ineffective/invalid. For further details, please see standard terms of sale and delivery for LINAK A/S.

### Note:

Only an authorised LINAK® service centre should repair LINAK actuator systems. Systems to be repaired under warranty must be sent to an authorised LINAK service centre.

In order to avoid the risk of malfunction, all actuator repairs must only be carried out by an authorised LINAK Service shop or repairer, as special tools and parts must be used.

If a system is opened by unauthorised personnel there is a risk that it may malfunction at a later date.

The actuator is not to be opened by unauthorised personnel. In case the actuator is opened, the warranty will be invalid.

# FCC Statement - LA36IO with Bluetooth®



## Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L' appareil ne doit pas produire de brouillage;
- (2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.

## Product label for LA36 IO



### 1. **Type: 3620060000B3AA0611E39999A00000**

Describes the basic functionality of the product

### 2. **Item no.: 36IOTEST-00**

Sales and ordering code

### 3. **Prod. Date: YYYY.MM.DD**

Production date describes when the product has been produced.

This date is the reference for warranty claims

### 4. **Max Load: Push 1200 N / Pull 1200 N IP66**

Describes the maximum load that the product can be exposed to in compression and tension. This line also contains a reference to the product's IP protection degree (dynamic)

### 5. **Power Rate: 24 VDC / Max. 2.7 Amp**

Input voltage for the product and maximum current consumption

### 6. **Duty Cycle: 20 %, Max. 4 min. / 16 min.**

The duty cycle defines the maximum period during operation without interruption.

After operation, a pause must be observed.

It is important that the operator follows the instructions of the duty cycle; otherwise, a possible overload may result in reduced product life/errors

### 7. **FCC ID and IC**

A unique identifier assigned to a device registered for legal sale of wireless devices

### 8. **W/O #12345678-0001**

The LINAK work order followed by a unique sequential identification number



## DECLARATION OF CONFORMITY

LINAK A/S  
Smedevænget 8  
DK - 6430 Nordborg

hereby declares that

Actuator 36\*\*\*\*\*A72B=\*\*\*\*\* , 36\*\*\*\*\*A74B=\*\*\*\*\* , 36\*\*\*\*\*A82B=\*\*\*\*\* ,  
36\*\*\*\*\*A84B=\*\*\*\*\*

37\*\*\*\*\*A72B=\*\*\*\*\* , 37\*\*\*\*\*A74B=\*\*\*\*\* , 37\*\*\*\*\*A82B=\*\*\*\*\* ,  
37\*\*\*\*\*A84B=\*\*\*\*\*

(The '\*' in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following standards:  
EN 55016-2-1:2014, EN 55016-2-3:2017,  
EN 61000-4-2:2009, EN 61000-4-4:2012, EN 61000-4-5:2014, EN 61000-4-6:2014

complies with the RoHS2 Directive 2011/65/EU according to the standard:  
EN 50581:2012

### Additional information:

The system does comply with the selected parts of the standards:

EN 61000-6-1:2019, Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments

EN 61000-6-2:2005, Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments

EN 61000-6-3:2007+A1, Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments

EN 61000-6-4:2007: Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments

Nordborg, 2021-01-05

### LINAK A/S

John Kling, B.Sc.E.E.

Regulatory Affairs Manager

Authorized to compile the relevant technical documentation

This declaration of conformity is issued under the sole responsibility of the manufacturer.  
Original Declaration



## DECLARATION OF CONFORMITY

LINAK A/S  
Smedevænget 8  
DK - 6430 Nordborg

Hereby declares that

Actuator LA36CAN series  
36xxxxCDxxx1xx, 36xxxxCDxxx2xx, 36xxxxCDxxxAxx, 36xxxxCDxxxBxx  
(The 'X' s in the product description can either be a character or a number, thereby defining the variation of the product)

complies with the EMC Directive 2014/30/EU according to following standards:  
EN 61000-4-2:2009, EN 61000-4-3:2006+A1+A2, EN 61000-4-4:2012, EN 61000-4-5:2014, EN 61000-4-6:2014, EN 61000-4-8:2010, EN 55016-2-3:2010+A1, EN 55016-2-1:2014, EN 55025:2008

complies with RoHS2 Directive 2011/65/EU according to the standard:  
EN 50581:2012

Additional information:

The device does comply with the harmonized standards:  
EN 61000-6-1:2007, Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments  
EN 61000-6-3:2007, Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments  
EN 61000-6-2:2005, Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments  
EN 61000-6-4:2007, Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

The device does also comply with the standards:  
ISO 10605:2008, Road vehicles -- Test methods for electrical disturbances from electrostatic discharge  
ISO 11452-4:2005, Road vehicles -- Component test methods for electrical disturbances from narrowband radiated electromagnetic energy -- Part 4: Harness excitation methods  
ISO 11452-2:2004, Road vehicles -- Component test methods for electrical disturbances from narrowband radiated electromagnetic energy -- Part 2: Absorber-lined shielded enclosure  
ISO 7637-2:2004, Road vehicles -- Electrical disturbances from conduction and coupling -- Part 2: Electrical transient conduction along supply lines only

Nordborg, 2016-09-08



**LINAK A/S**  
John Kling, B.Sc.E.E.  
Regulatory Affairs Manager  
Authorized to compile the relevant technical documentation

Original declaration

**DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY**

**LINAK A/S**  
Smedevænget 8  
DK - 6430 Nordborg

Herewith declares that LINAK TECHLINE ® products  
as characterized by the following models and types:

Linear Actuators      LA12, LA14, LA22, LA23, LA25, LA30, LA35, LA36, LA37

comply with the following parts of the Machinery Directive 2006/42/EC, ANNEX I, *Essential health and safety requirements relating to the design and construction of machinery*:

1.5.1 Electricity supply

The relevant technical documentation is compiled in accordance with part B of Annex VII and that this documentation or part hereof will be transmitted by post or electronically to a reasoned request by the national authorities.

**This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC where appropriate.**

Nordborg, 2014-10-20



**LINAK A/S**  
John Kling, B.Sc.E.E.  
Certification and Regulatory Affairs  
Authorized to compile the relevant technical documentation

Original Declaration

## FACTORIES

### CHINA

LINAK (SHENZHEN) ACTUATOR SYSTEMS, LTD.  
PHONE: +86 755 8610 6656  
PHONE: +86 755 8610 6990  
WWW.LINAK.CN

### DENMARK - HEADQUARTERS

LINAK A/S  
PHONE: +45 73 15 15 15  
FAX: +45 74 45 80 48  
FAX (SALES): +45 73 15 16 13  
WWW.LINAK.COM

### SLOVAKIA

LINAK SLOVAKIA S.R.O.  
PHONE: +421 51 7563 444  
WWW.LINAK.SK

### THAILAND

LINAK APAC LTD.  
PHONE: +66 33 265 400  
WWW.LINAK.COM

### USA

LINAK U.S. INC.  
AMERICAS HEADQUARTERS  
PHONE: +1 502 253 5595  
FAX: +1 502 253 5596  
WWW.LINAK-US.COM  
WWW.LINAK-LATINAMERICA.COM

## SUBSIDIARIES

### Australia

LINAK Australia Pty. Ltd  
Phone: +61 3 8796 9777  
Fax: +61 3 8796 9778  
E-mail: sales@linak.com.au  
www.linak.com.au

### Austria

LINAK Repräsentanz - Österreich (Wien)  
Phone: +43 (1) 890 7446  
Fax: +43 (1) 890 744615  
E-mail: info@linak.de  
www.linak.at - www.linak.hu

### Belgium

LINAK Actuator-Systems NV/SA  
(Belgium & Luxembourg)  
Phone: +32 (0)9 230 01 09  
E-mail: beinfo@linak.be  
www.linak.be - www.fr.linak.be

### Brazil

LINAK Do Brasil Comércio De Atuadores Ltda.  
Phone: +55 (11) 2832 7070  
Fax: +55 (11) 2832 7060  
E-mail: info@linak.com.br  
www.linak.com.br

### Canada

LINAK Canada Inc.  
Phone: +1 502 253 5595  
Fax: +1 416 255 7720  
E-mail: info@linak.ca  
www.linak-us.com

### Czech Republic

LINAK C&S s.r.o.  
Phone: +42 058 174 1814  
Fax: +42 058 170 2452  
E-mail: info@linak.cz  
www.linak.cz - www.linak.sk

### Denmark - International

LINAK International  
Phone: +45 73 15 15 15  
E-mail: info@linak.com  
www.linak.com

### Denmark - Sales

LINAK DANMARK A/S  
Phone: +45 86 80 36 11  
Fax: +45 86 82 90 51  
E-mail: linak@linak-silkeborg.dk  
www.linak.dk

### Finland

LINAK OY  
Phone: +358 10 841 8700  
E-mail: linak@linak.fi  
www.linak.fi

### France

LINAK FRANCE E.U.R.L  
Phone: +33 (0) 2 41 36 34 34  
Fax: +33 (0) 2 41 36 35 00  
E-mail: linak@linak.fr  
www.linak.fr

### Germany

LINAK GmbH  
Phone: +49 6043 9655 0  
Fax: +49 6043 9655 60  
E-mail: info@linak.de  
www.linak.de

### India

LINAK A/S India Liaison Office  
Phone: +91 120 4531797  
Fax: +91 120 4786428  
E-mail: info@linak.in  
www.linak.in

### Ireland

LINAK UK Limited (Ireland)  
Phone: +44 (0)121 544 2211  
Fax: +44 (0)121 544 2552  
+44 (0)796 855 1606 (UK Mobile)  
+35 387 634 6554  
(Republic of Ireland Mobile)  
E-mail: sales@linak.co.uk  
www.linak.co.uk

### Italy

LINAK ITALIA S.r.l.  
Phone: +39 02 48 46 33 66  
Fax: +39 02 48 46 82 52  
E-mail: info@linak.it  
www.linak.it

### Japan

LINAK K.K.  
Phone: 81-45-533-0802  
Fax: 81-45-533-0803  
E-mail: linak@linak.jp  
www.linak.jp

### Malaysia

LINAK Actuators Sdn. Bhd.  
Phone: +60 4 210 6500  
Fax: +60 4 226 8901  
E-mail: info@linak-asia.com  
www.linak.my

### Netherlands

LINAK Actuator-Systems B.V.  
Phone: +31 76 5 42 44 40 /  
+31 76 200 11 10  
E-mail: info@linak.nl  
www.linak.nl

### New Zealand

LINAK New Zealand Ltd  
Phone: +64 9580 2071  
Fax: +64 9580 2072  
E-mail: nzsales@linak.com.au  
www.linak.com.au

### Norway

LINAK Norge AS  
Phone: +47 32 82 90 90  
E-mail: info@linak.no  
www.linak.no

### Poland

LINAK Polska  
LINAK Danmark A/S (Spółka Akcyjna)  
Phone: +48 22 295 09 70 /  
+48 22 295 09 71  
E-mail: info@linak.pl  
www.linak.pl

### Republic of Korea

LINAK Korea Ltd.  
Phone: +82 2 6231 1515  
Fax: +82 2 6231 1516  
E-mail: info@linak.kr  
www.linak.kr

### Slovakia

LINAK SLOVAKIA S.R.O.  
Phone: +421 51 7563 444  
www.linak.sk

### Spain

LINAK Actuadores, S.L.u  
Phone: +34 93 588 27 77  
Fax: +34 93 588 27 85  
E-mail: esma@linak.es  
www.linak.es

### Sweden

LINAK Scandinavia AB  
Phone: +46 8 732 20 00  
Fax: +46 8 732 20 50  
E-mail: info@linak.se  
www.linak.se

### Switzerland

LINAK AG  
Phone: +41 43 388 31 88  
Fax: +41 43 388 31 87  
E-mail: info@linak.ch  
www.linak.ch - www.fr.linak.ch  
www.it.linak.ch

### Taiwan

LINAK (Shenzhen) Actuator systems Ltd.  
Taiwan Representative office  
Phone: +886 2 272 90068  
Fax: +886 2 272 90096  
E-mail: sales@linak.com.tw  
www.linak.com.tw

### Turkey

LINAK İth. İhr. San. ve Tic. A.Ş.  
Phone: +90 312 4726338  
Fax: +90 312 4726635  
E-mail: info@linak.com.tr  
www.linak.com.tr

### United Kingdom

LINAK UK Limited  
Phone: +44 (0)121 544 2211  
Fax: +44 (0)121 544 2552  
E-mail: sales@linak.co.uk  
www.linak.co.uk

## DISTRIBUTORS

### Argentina

NOVOTEC ARGENTINA SRL  
Phone: 011-4303-8989 / 8900  
Fax: 011-4032-0184  
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www.novotecargentina.com

### Colombia

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E-mail: servicioalcliente@memltda.com.co  
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E-mail: bala@mechatronicscontrol.com  
www.mechatronicscontrol.com

### Indonesia

PT. HIMALAYA EVEREST JAYA  
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+6 221 544 8965  
Fax: +6 221 619 1925  
Fax (Sales): +6 221 619 4658  
E-mail: hejplastic-div@centrin.net.id  
www.hej.co.id

### Israel

NetivTech LTD  
Phone: +972 55-2266-535  
Fax: +972 2-9900-560  
Email: info@NetivTech.com  
www.netivtech.com

### Singapore

Servo Dynamics Pte Ltd  
Phone: +65 6844 0288  
Fax: +65 6844 0070  
E-mail: servodynamics@servo.com.sg

### South Africa

Industrial Specialised Applications CC  
Phone: +27 011 466 0346  
E-mail: garth@isagroup.co.za  
www.isaza.co.za

### United Arab Emirates

Mechatronics  
Phone: +971 4 267 4311  
Fax: +971 4 267 4312  
E-mail: mechtron@emirates.net.ae

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