TECHLINE
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BusLink
User Guide

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Guide to connect the actuator to BusLink

Actuators with IC - Integrated Controllers from LINAK® can be configured via the BusLink Configuration Software. Please follow the three steps to connect your actuator to BusLink.


LA14


LA25


LA33


LA36


LA37

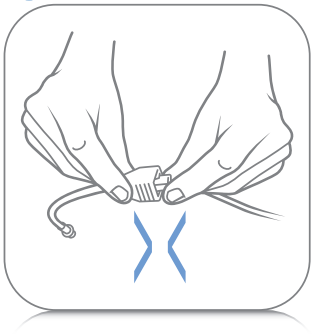
1 Start by downloading the free BusLink software here:

WWW.LINAK.COM/SEGMENTS/TECHLINE/TECH-TRENDS/IC-AND-BUS-ACTUATORS/

BusLink cable ordering numbers - include 1 USB2LIN cable and 1 Interface cable:

LA14/LA25 IC (blue interface): 0147999
LA33/LA36/LA37 IC (blue interface): 0367999
LA36/LA37 Modbus (yellow interface): 0367998
LA36 CAN bus (green interface): 0367997
LA14/LA25 CAN bus (green interface): 0147997

2 Cable connection

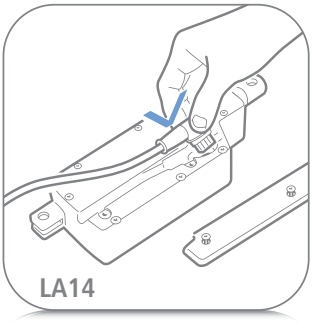


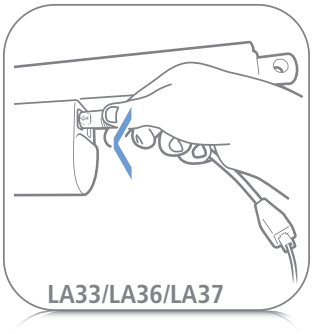
In order to connect your actuator to the PC tool you will need two separate cables:

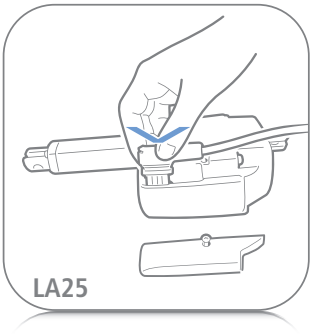
1 USB2LIN cable.
1 interface cable.

Start by connecting the two cables.

Please note that the cables must be purchased separately from the actuator.

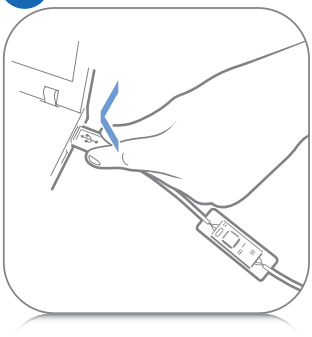




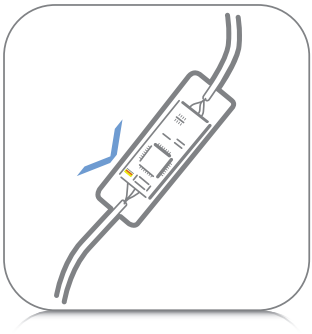


Before connecting the power supply:
Connect the interface cable to the actuator...

3 Power supply



... **and plug in the USB2LIN cable to your computer or laptop.** Afterwards, please open the BusLink program on your computer.



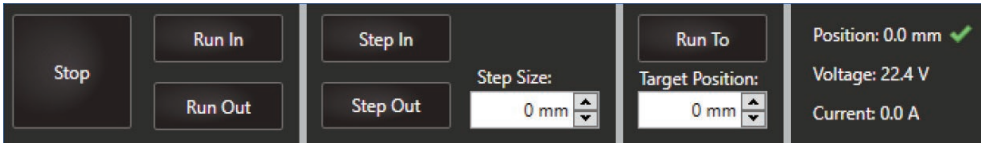
The green diode on the USB2LIN will now flash, but please be aware that the BusLink program is still in a disconnected mode.

Finally, connect your power supply to the actuator.
A few seconds will pass before the connection to BusLink is established and the actuator is ready for configuration.

When changing the actuator's signal cable with the BusLink cable, it is important that this is done carefully in order to protect the plugs and pins. Please make sure that the plug is in the right place and fully pressed in before mounting the cable lid.

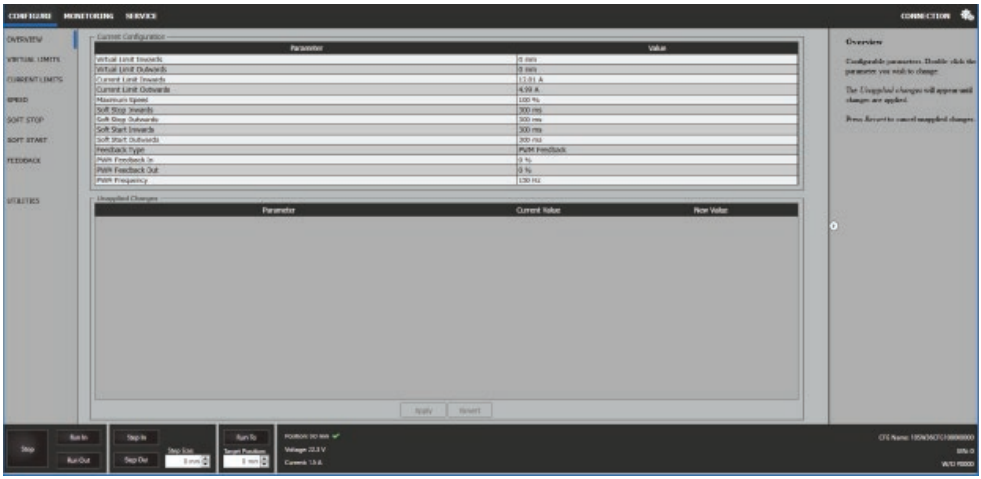
Configure the IC actuator with BusLink 2 software

The actuator can be controlled from within the software using the buttons at the bottom of the screen. These controls are available at all times. The "Run In/Out" buttons will run the actuator to the limits, real or virtual. The step controls will move the actuator in selectable increments. The "Run To" function will move the actuator to an arbitrary specified position. The actuator's current status is shown on the right. These values are actively recorded in a graph that will be explained later in this user guide.



Configure:

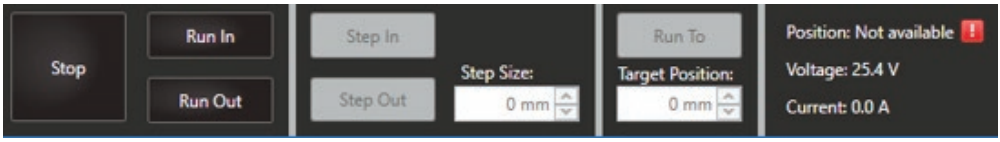
Once connected, you will be able to click on one of three tabs in the top left. If you select CONFIGURE, this screen will appear:



The overview will give you read-only information about the currently implemented parameters that can be edited. Each parameter can be modified by clicking on the menu item to the left. Any changes made will be shown in the "Unapplied Changes" box and will remain until you "Apply" the changes to the actuator.

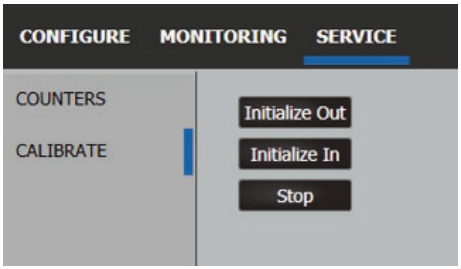
Calibration

The IC platform uses hall effect sensors to determine the actuator's exact position along its stroke length. If once connected, the actuator's position status is displayed as "Not available", then the actuator must first be calibrated to use the full control functionality within the software. A calibration is required each time new parameters have been applied for the actuator's behavior. Calibration happens automatically whenever the actuator hits a limit switch, so it is not necessary to be connected to BUSLINK for this to occur.



Initialize In/Out

To begin calibration, simply click on the "Service" tab at the top of the window, then select "Calibration" on the left menu.



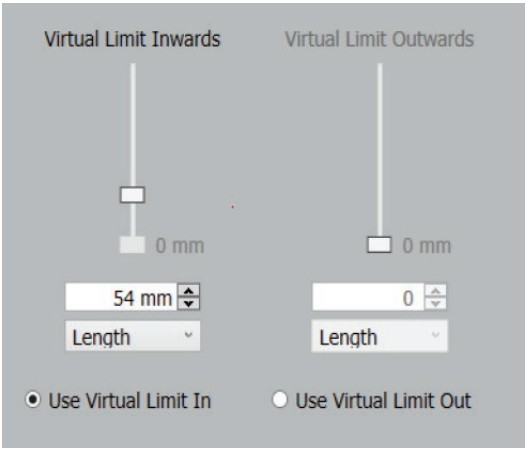
From here, determine where your actuator's current position is. If the actuator is fully extended, then select "Initialize In" to run the actuator to the inwards limit switch. If the actuator is fully retracted, then select "Initialize Out" to run the actuator to the outwards limit switch. If the actuator is somewhere in between fully extended and fully retracted, selecting either "Initialize In" or "Initialize Out" will successfully calibrate the system.

Once this process is complete, you'll find that the position is now available.

Controls

Virtual Limit:

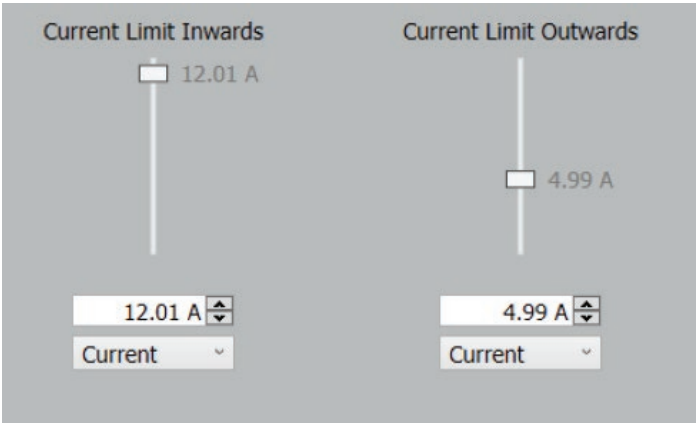
A virtual end stop can be selected for either the inward or the outward direction.
Only one virtual limit can be selected.



Current Limit:

The current limit can be edited as a value or percentage for both directions.
The maximum current will not exceed the maximum factory settings.

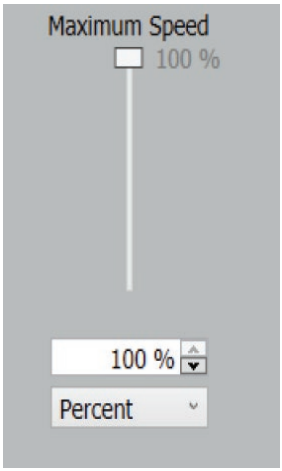
Note: If the actuator operating temperature reaches $0^0C/32^0F$, the current limits are removed.



Controls

Speed:

The speed percentage can be adjusted as a motor voltage percentage. The lowest recommended speed is 60% to ensure that the actuator will push the rated load.

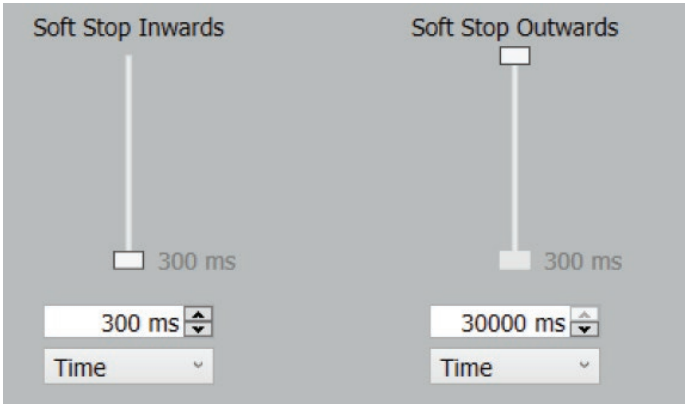


Soft Stop:

With a soft stop, you select a time-frame for the actuator to slow down to zero after the stop signal is applied. The time can be set between 0 (hard stop) and 30 sec, with the exception of: 0.1-299 ms. The reason for this, is that the actuator is unable to redirect/consume the accumulated energy in a 0.1-299 ms stop.

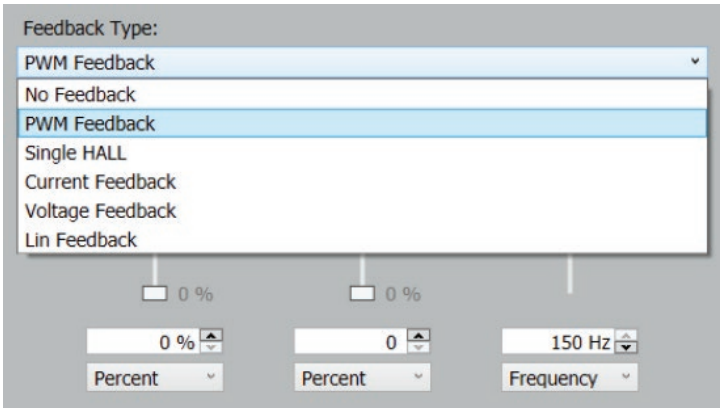
Soft Start:

The soft start is similar in function to the soft stop, but can be fully configured between 0-30 sec.



Feedback types

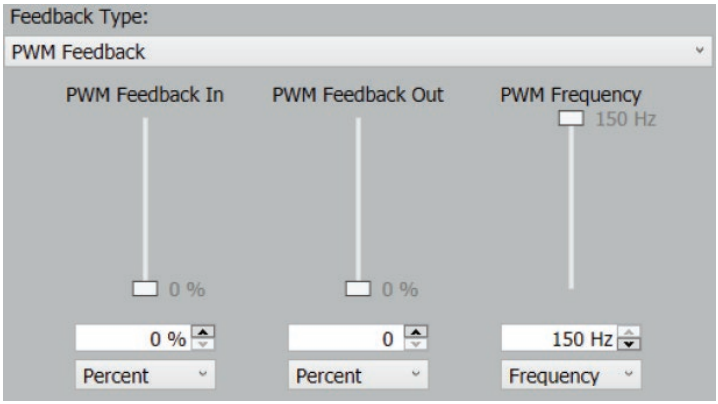
The IC Actuator can supply the user's control system with one of several types of feedback listed below, depending on model:



PWM:

The pulse width modulation (PWM) type is configurable with three parameters:

"PWM Feedback In" sets the percentage of the pulse for the IN "End of Stroke" (EOS) postion.
The "PWM Feedback Out" sets the percentage pulse for the outermost position. Typical settings are 10% IN and 90% OUT. The feedback resolution is improved by having a wider pulse percentage range. The available base frequency range for PWM is 75-150 Hz.



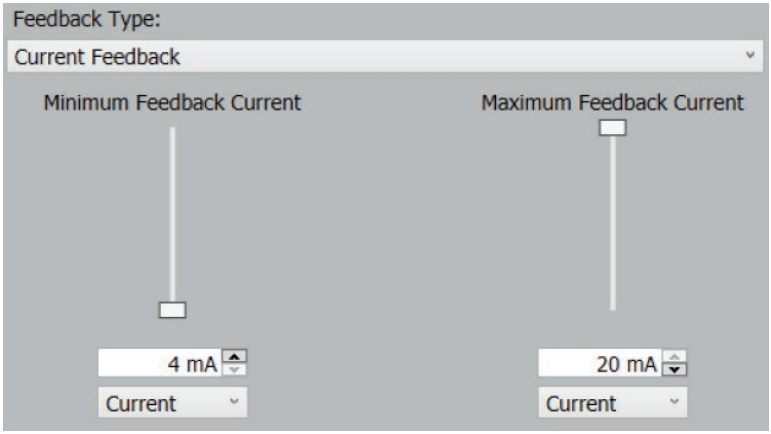
Single Hall:

Single hall can be selected but there are no changeable user modifiable parameters.

Feedback types

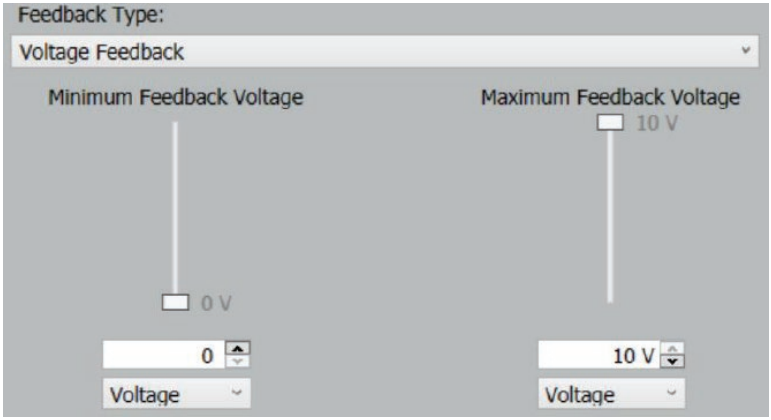
Current Feedback:

The position of the actuator can be correlated to current output. The available current range is 4-20 mA. The user can select values in the whole range but the highest resolution is achieved with the widest current range. The minimum setting is the IN EOS or virtuel limit in position and the maximum is the OUT EOS or virtuel limit out.



Voltage Feedback:

The position of the actuator can be correlated to a voltage output as well. The available voltage range is 0-10 V. The user can select any set of values in that range but the highest resolution is achieved with the widest voltage range. The minimum setting is the IN EOS or virtuel limit position and the maximum is the OUT EOS or virtual limit out.

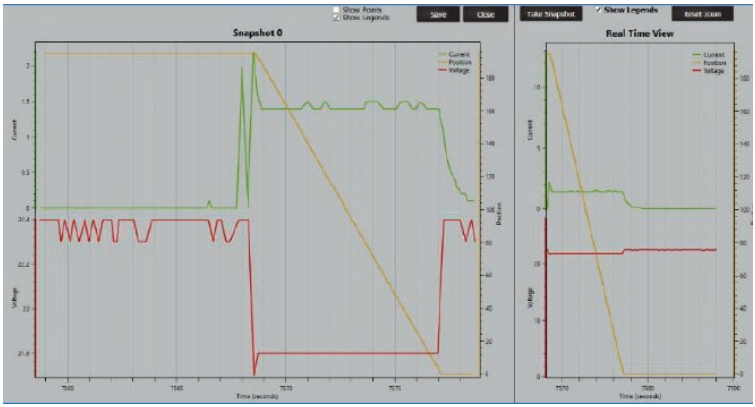


Feedback types

Monitoring:

The middle tab is a real-time graph showing current, position, and supply voltage. From here, you are able to change the scale by zooming and a snapshot as an image. The graph auto scales when taking a snapshot. You can save a snapshot as an image or as a dataset.

This snapshot shows the actuator moving from the OUT EOS position to the IN EOS position. If the position line does not show a movement, the position will be found when it reaches one of the end stops as the feedback is automatically initialised.



Service:

The service tab shows a detailed history into the life of the actuator.

This data can then be exported to a pdf file for review

Run/Stop	
Number of Starts Inwards	256 times
Number of Starts Outwards	315 times
Reason for Last Unintended Stop	Under-voltage
Runtime	0h 54m 26s
Temperature	
Maximum FET Temperature Seen	77.3 °C
Maximum Actuator Temperature Seen	34.8 °C
Minimum Actuator Temperature Seen	13.5 °C
Number of Stops Due to Actuator Temperature	0 times
Actuator Temperature	30.2 °C
Counters	
Number of Stops Due to HALL Error	0 times
Number of EOS errors	0 times
Number of EOS Out	149 times
Number of EOS In	250 times
Voltage	
Number of Stops Due to Over-voltage	0 times
Number of Stops Due to Under-voltage	3 times
Current	
Total Current Usage	5316.3 As
Number of Customer Current Limit Overloads Out	9 times
Number of Customer Current Limit Overloads In	0 times
Maximum Current Seen	14.2 A
Number of Linak Current Limit Overloads Out	0 times
Number of Linak Current Limit Overloads In	0 times

Export to PDF

IC Parallel

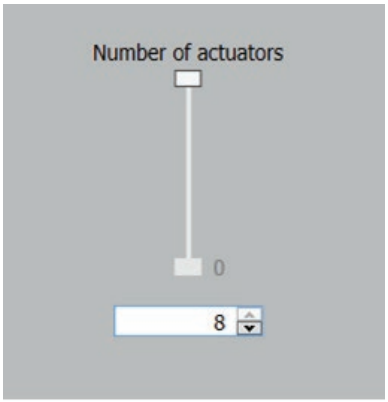
IC Parallel Configuration:

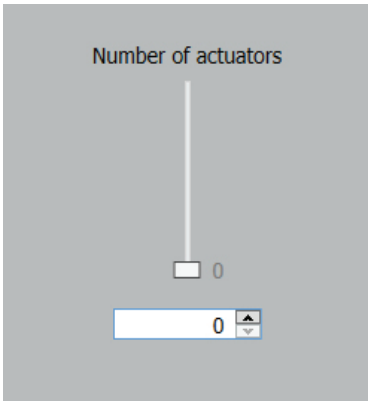
If you have ordered an IC Parallel actuator, the actuator connects to BusLink in the same way as IC Advanced. An additional "PARALLEL" option is desplayed on the left sidebare on the CONFIGURE screen. When selected, you can change the number of actuators in the parallel system. This safety setting determines the number of actuators an IC Parallel system must include in order to operate.

Critical and Non-critical:

When you select a number of actuators for your system, the operation is considered "Critical". When connected, the actuators are looking for the correct number of online actuators. If one becomes unresponsive, the whole system will stop. If you want the actuators to run in parallel, but without the necessity of all units in the system being connected, select "0" (Non-Critical) for all actuators in the system. All actuators will run together, but functions will not be blocked if one or more units are disconnected/offline. The selections available are "0" (Non-Critical), then "2-8" (Critical).

Note: Feedback is not an option with IC Parallel.





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