

X LIFTER

World's first
Air-suspension controller with self-levelling feature
for the Discovery 3/4 (LR3/4) and RRS Land Rover® vehicles



User manual (Installation & user guide)

Model X2, Firmware 1.05

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Quick Overview:

Congratulations, on your XLifter purchase! I am so glad you decided to read the instructions. Many users casually dismiss instructions and seek to figure it out on their own – which is perfectly possible, however, even though I’ve built the product as simple and intuitive as possible, there are some useful tricks, hints, warnings and “behind the scenes” info that’s worth a read.

Chapter 4 is all about installation, skip it if the XLifter is already installed.

The most important is chapter 5 - Instruction for use, where the XLifter daily-use functions are described. Please consider reading it again after a few days of hands-on experience.

Thank you for your trust in XLifter and have a great experience.

1. Legal disclaimer

You are hereby provided with an air-suspension controller for Land Rover vehicles – product named XLifter (hereinafter as “**device**” or “**XLifter**”).

XLifter is an additional device able to change/adjust the air-suspension computer/electronic programming of the vehicle in which the device is installed.

XLifter is not a device approved and designed for installation into vehicles intended to be operated on public roads namely pursuant to Act. no. 361/2000 Coll, as amended. The manufacturer does not assume any liability deriving from technical requirements for operation of vehicles on public roads in case you decide to use this product in traffic on public roads or anywhere else, where operation of this device may be considered as unauthorized, whether in the Czech Republic or in any other jurisdiction. **The end-user assumes all liability connected to use of the device on public roads, derived namely from the mandatory technical requirements for operation of vehicles on public roads provided by Act. No. 56/2001 Coll and regulation no. 341/2014 Coll.**

By installation of the device the end-user releases/discharges the manufacturer from any liability connected to any influence or damage (whether financial or immaterial) of the provided product on other systems, parts or components of the vehicle (whether mechanical or electrical). By installation of this product the end-user also acknowledges that this product is meant to be used **in controlled conditions, namely at low speeds and with increased caution.**

The end-user undertakes the responsibility to inform any prospective future owner of the respective vehicle equipped with the device and/or about installation of the device.

By installation of the device you acknowledge the above-mentioned and agree with the above-mentioned terms. Please use the XLifter only in off-road conditions and not on public roads.

2. General description

XLifter is an advanced air-suspension controller for specified Land Rover vehicles. XLifter allows you to take the air suspension capabilities of your Land Rover to the maximum, making your off-roading or expedition travelling a greater experience.

XLifter gives you more detailed control over the vehicle height settings. Raising the vehicle above the maximum specified (By Land Rover) “Off-road” height, helps you to tackle difficult terrain. XLifter is not limited by the 40 Km/h speed limit, therefore travelling over long stripes of sand, green lanes or gravel roads will be more manageable. Also, XLifter keeps selected lift settings archived, which means that you can keep it as a selected height constantly should you wish to. Lowering the vehicle, slightly, improves cornering stability and aerodynamics (which may add to fuel consumption efficiency). Lowering below the original access height makes it possible for the entering of low-clearance garages or ferries and makes cargo loading easier.

XLifter’s unique self-levelling feature makes your in-car or roof top tent conditions more comfortable during expedition travelling.

XLifter controls are intuitive and comfortable. The control module with graphical OLED display and physical buttons is optimized for off-road handling.


XLifter EAS unit communicates with the control module wirelessly. Installation to your vehicle is simple and fully removable when required. **No drilling, soldering, or in-car wiring is required.**


XLifter is designed for Land Rover® Discovery 3 (LR3), Discovery 4 (LR4) and Range Rover® Sport (model L320) vehicles. Range Rover® L322 2007-2012 support is currently experimental (in development).

3. Safety information

This manual contains important information on the installation and use of the XLifter. Please take some time to read this section to fully utilise the XLifter features and to ensure that you know how to operate it safely. Use the XLifter only for its intended purpose as described in this user manual.


What the safety symbols in this user manual mean:


 This symbol represents potential general warnings, hazards or unsafe practices that may result in possible damage to vehicle or vehicle systems. **Please read texts marked by this symbol carefully and proceed according to provided instructions to avoid risks.**


 **Warning:** This symbol, with the word "warning" attached above or next to the symbol, indicates situations where non-compliance may result in serious injury or damage to the equipment or vehicle.


Safety instructions are described on a continuous basis in the description of each XLifter function. However, below is an overview of the most important ones:

General warnings:


 **Warning:** Ensure that the XLifter is operated only by a person familiar with this manual. If another person is driving, please activate the Keylock function before driving, as a safety measure. (see chapter 5.4)


 **Warning:** If an XLifter is left installed in the vehicle when it is sold, notify the new acquirer and familiarize him with this manual. Please keep this manual in the vehicle in an accessible location for a future reference.


 **Warning:** Do not use XLifter while driving on the public roads. Do not lower or raise the vehicle at high speeds.

 **Warning:** When using the XLifter mobile application, same warnings applies. There is no difference when you control the XLifter from the control module or mobile app


Warnings for the lifter and lifer-free functions:


 **Warning:** Don't overstress the CV joints **when in extreme lifts** - "Sky Rocket" (+75 mm) or any lift program while the "original" vehicle height is engaged in Off Road. **Be gentle with the accelerator pedal when you have low-range engaged and you are steering excessively to the left or right with.**


 **Warning:** In the original "Off Road" vehicle height, it is not recommended to lift the vehicle with XLifter by more than +25 mm permanently due to possible increase wear of the air-springs.


 **Warning: Be gentle to the vehicle compressor!** The compressor will overheat when the vehicle is lowered/raised several times (3x is enough) in a row. When overheated to approx. 130 °C, the Land Rover EAS unit inhibit further operation until cooled down. Cooling takes about 10 minutes. **Watch the compressor temperature!**

Warning for the levelling function:

 **Warning: NEVER start the levelling function while driving.** The wheels height will be set differently, which results to potentially dangerous situation. Start levelling **ONLY** when the vehicle is stationary.

 **When active, the levelling function must be exited before driving.** Otherwise you start driving with unbalanced wheel heights, exposing yourself to potentially dangerous situations and you may even damage your vehicle. **NEVER leave the camping place with levelling still active!**

 Do not engage electronic park break (EPB) before or during levelling. It will cause unnecessary tension on the park brake cables, which will counteract wheel movement. You may use the features in park mode without the brake engaged.

 **Warning:** Close all doors before starting the levelling function to prevent possible damage due to contact with surrounding obstacles/obstructions.

4. Installation

4.1. Package Contents

1x XLifter EAS installation	1x Cable harness with the bypass plug
1x XLifter control module	1x Velcro strip for easy control module installation
1x User manual	1x XLifter sticker

4.2. Installation - General Description and Overview

The XLifter device consists of 2 main components - the control module and the EAS installation unit (EAS stands for Electronic Air Suspension). The control module (display unit with buttons) is used to control all settings and to inform the user of the operating status. The EAS unit serves to adjust the wheel height sensor signals and vehicle tilt measurements. Communication of the control module and the EAS unit is wireless.

The control module can be placed anywhere in the interior of the vehicle that allows for easy accessibility – as per user preference. The control module needs to be connected to an 12V power supply (cigarette lighter socket). Advanced users may cut the power connector and connect the cable to appropriate 12V junction point. Installation with all cables hidden will look more aesthetically pleasing and the lighter socket will not be blocked by the plugged-in unit.

The XLifter EAS unit is installed near the original air suspension control unit and connects with it via the supplied cable harness. The XLifter EAS unit is mechanically attached to the body of the vehicle after installation, thus serves also as an accurate tilt sensor.

Please see the XLifter installation video guide before installation!

It is available on YouTube - search for XLifter installation guide:

Discovery 3,4 & Range Rover Sport: <https://youtu.be/gEOBpTRY008>

Range Rover L322 2007 – 2009: https://youtu.be/Fz_a2Fp91Gc

Range Rover L322 2010 – 2012: https://youtu.be/Qq9_o0icBFQ

Guide is also available at Facebook (<https://www.facebook.com/XLifterEAS/>) and www.xlifter.com.

Quick installation overview in 4 steps:

1. Install the XLifter EAS unit
2. Connect the cable harness.
3. Plug the control module power to 12V socket..
4. Set the vehicle type and the Steering position and run the calibration procedure.

Installation guide in this manual is for Discovery 3, 4 & Range Rover Sport. Procedure is very similar for the other vehicle types – please see the video guides!

4.3. EAS Unit Installation



The installation procedure of the EAS unit is listed below for the Discovery 3/4 vehicle. The Range Rover Sport's original EAS control unit is located about 10cm lower than in the Discovery. For convenient access to the connectors, it is necessary to remove the footwell and the adjacent left panel (the one with the front bonnet open handle).

Estimated installation time:

- The EAS unit installation should take approximately 20 minutes.

Tools required:

- Common cross-head screwdriver (e.g. original from Land Rover equipment).
- Flashlight - Installation area lighting

EAS unit installation procedure:

1. Disconnect the vehicle battery according to the vehicle user manual (optional)

- a. Make sure the ignition is off.
- b. Disconnect the + pole.
- c. Wait 1 minute.

Note: This is not really required, installing without disconnecting the battery does not cause problems.

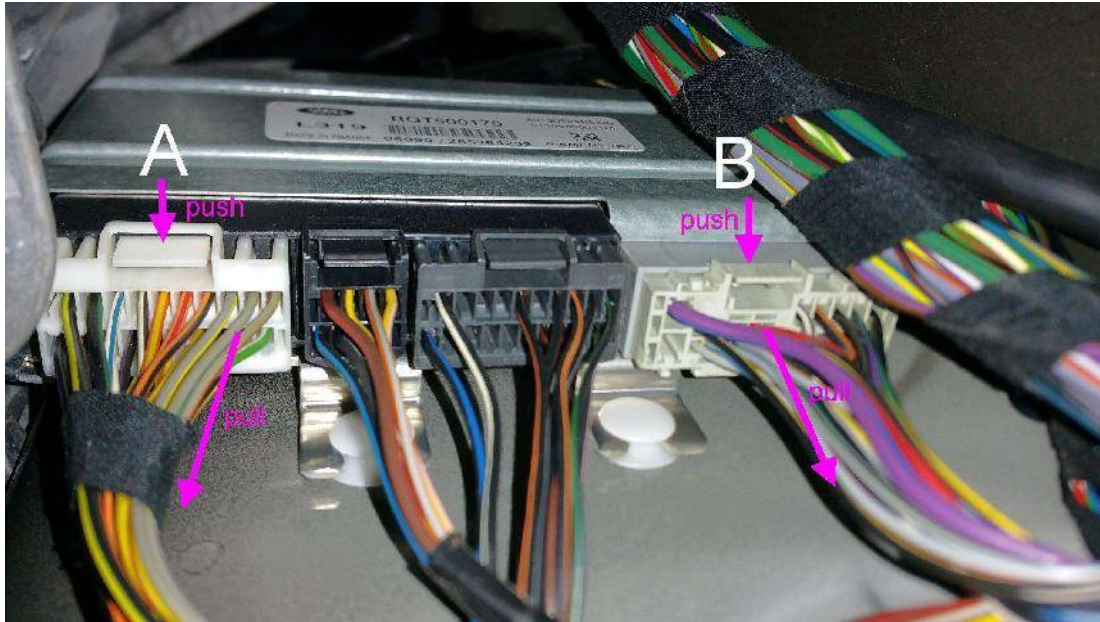
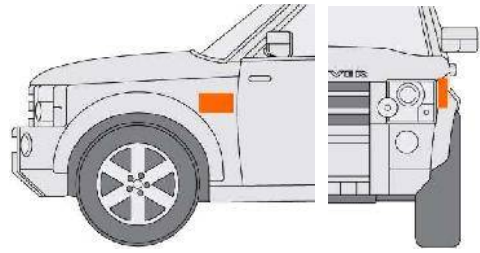
2. Dismantle the lower dashboard cover panel under the steering wheel.

- ⚠ If installing to the Range Rover Sport L320, see the note above.
- a. Unscrew the two screws holding the cover.
 - b. Pull in the direction of the RIGHT green arrow (see picture below) to release a mechanical connector connecting the cover to the central tunnel.
 - c. Hold the cover panel in the centre. Pull down and towards you slightly to move the cover panel down for approximately 10 centimetres.
 - d. Disconnect the light connector located on the left side (right for RHD vehicles) of the cover.
 - e. Remove the entire cover.



3. Disconnect wiring harnesses from the original LANDROVER EAS unit

- The Land Rover EAS unit is located at the left (right for RHD vehicles) inner side of car body – approx. in the middle of imaginary line between the end of A pillar and drivers footrest.
 - Use a flashlight to illuminate the work area.
- a. Disconnect the A and B connectors.
Disconnect the connector by pushing the connector lock and pulling it outwardly. The A and B connectors are the most left and right ones.
 - b. Place the disconnected cable harnesses temporarily behind the rest of the cables in area. This will help you to create enough space for a comfortable XLifter EAS unit installation.



4. Install the XLifter EAS unit



- Prior to sticking the XLifter EAS unit into its final position, it may be a good idea to practice placing the EAS unit, without having removed the 3M reclosable fastener protective foil. The 3M fastener sticks very firmly once placed in a position making it difficult to remove or move.
 - The XLifter EAS unit is equipped with a tilt sensor. The unit must be positioned upright and as accurately – in approximate to the vehicle's level position on the level surface – as possible. Otherwise (sticking it horizontally or "upside down"), the leveling function will not work properly.
- a. On the unprinted side of the EAS unit, remove the adhesive protection foil from the 3M fasteners.
 - b. Place and stick the XLifter EAS unit to the original Land Rover EAS unit as shown.
 - The printed side of the unit faces the centre tunnel.
 - The arrow marked THIS SIDE UP is pointing up.
 - For the sticking itself, it takes a few seconds with strong force required.



5. Connect the XLifter cable harness

- Plug the previously disconnected connectors to the connectors A(in) and B(in) of the supplied cable harness.

Pay attention to B (in) connector – do not extensively bend wires close to the connector. Pins inside connector housing may slightly bend, thus preventing full insertion. If you feel that connector is stuck in half-way, disconnect, fiddle wires a bit and try again. Watch the video guide.

- Manoeuvre the cable loom inside and connect the connectors A(out) and B(out) of the supplied cable harness to the original Land Rover Rover EAS unit.
- Plug the connector C to the XLifter EAS unit.

NOTICE:

- Place the "loose" cables in a way so they do not move freely. If necessary, use any tightening strap (not included). This prevents them from "knocking out" in long-term operation.
- None of the connectors are interchangeable. You cannot connect the cable harnesses in an incorrect way.

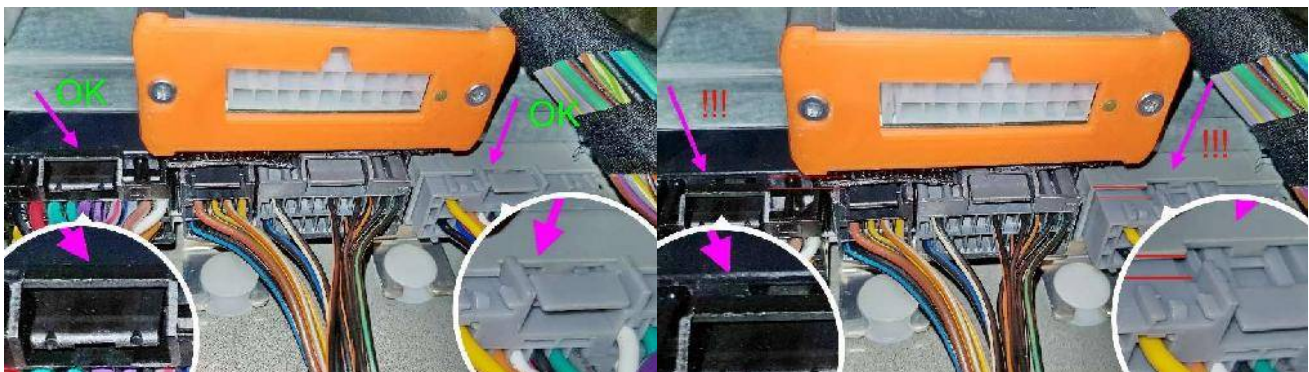


All connectors must be fully inserted as far as they will go, as shown. Some connectors, especially B ones, require slightly more force to fully connect. Incomplete insertion is the source of unpredictable problems, please pay attention here!



You can optionally connect the supplied bypass plug to the C connector (instead of the XLifter EAS unit), for two important functions:

- 1) Bypass plug allows to keep the cable harness installed in the vehicle without the EAS unit connected (replacement, removal etc...)
- 2) **bypass plug allows to test the cable harness.** With the bypass connector connected, the vehicle must behave normally - as if no cable harness is installed at all!!



6. Connect the vehicle battery in accordance with the vehicle user manual

- Only if you disconnected it in step 1.
- Discovery 4: The "Suspension error" will be displayed. **Cycle the ignition to clear it.**
- Discovery 3: The "Suspension error" should clear itself in few seconds.

7. Check the status LED on the XLifter EAS unit

- The green status LED flashes at a fast pace - 2x per second, indicating readiness for operation and awaiting wireless connection from the control module.

8. Re-install the lower dashboard cover panel

- Re-install the cover in reverse manner when dismantling it (just follow the instructions from step 2 in a reverse order).
- It is a good idea leaving this step as the very last one, when everything is checked and working.
- Do not forget to connect the light connector.
- When installing the cover back, it is necessary to "hit" with three centring protrusions on the rear of the cover to the holes on the wall behind the steering pedals.
- The cover needs to be slightly bent again, it is better to first install the part on the side of the EAS unit and then the side at the centre tunnel.

4.4. Control Module Installation

The control module and the EAS unit communicates wirelessly, therefore choosing a suitable location is completely up to you.

The control module is powered from an ignition-switched +12V power supply (e.g. cigarette lighter socket etc.). If you have enough skills and wish to do so, you can cut off this connector and hard-wire it into another suitable 12V source later (e.g. cigarette socketed wiring behind centre dashboard), thus making the wiring invisible. The power cable has standard colours – red for + pole and black is – pole. The control module is equipped with reverse-polarity protection circuit.

Control module installation procedure:

1. Connect the control module power

- Plug the 12 V power plug into the cigarette lighter socket.
- Attach the control module with the supplied installation material (Velcro) or at your own discretion to a suitable location (or do this later).

2. Quick-check the control module

- Turn the ignition ON
- The animated logo and the scrolling XLifter EAS unit wireless search indicator appears on the control module display.
- The control module and the XLifter EAS unit were already paired for you. The communication should be established within max. 10 seconds. Please allow up to 20 seconds if the EAS unit was just powered up thru the C connector, or by connecting the vehicle battery.
- When communication is established, the XLifter "home screen" appears. It will show zero lift and "Not Calibrated" info.



4.5. Vehicle type and calibration settings

Before using the XLifter for the first time, it is necessary to set the type of your vehicle and run the calibration procedure.

1. Press ► **three times** to access the **“Confirm calibration”** menu. You will go thru the main and settings menu, to calibration. Menu items are pre-selected for you.



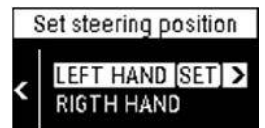
2. Set the car type

- Default car type is set to Discovery 4 (D4), Left hand steering side. If this is your vehicle, you can skip this and next steps.
1. Use ▲▼ to select **“change car type”**, then press ►.
 2. Use ▲▼ to **select your specific vehicle type** and press ►.
 - D3 for L319 Discovery 3 (LR3 in USA). Select your model year. Note: If D3 2008-09 causes car to tilt and/or throw suspension error, use the D3 2004-07.
 - D4 for L319 Discovery 4 (LR4 in USA).
 - RRS for L320 Range Rover Sport, select your model year.
 - RR for L322 Range Rover, select your model year. L322 support is experimental.

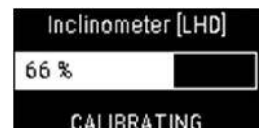


3. In next step, Use ▲▼ to **select correct “Steering position”** (“RIGHT HAND” or “LEFT HAND”) and press ►.

- Dependable on the steering side, the EAS unit is mounted in “mirrored” fashion This setting swaps the inclinometer axes. The levelling function will not work if set incorrectly.



4. Next, you will be brought back to the “Confirm Calibration” menu.
 - Please read the chapter 6 Calibration
 - When ready, press ► to run the calibration procedure.



Congratulations! The installation is finished.

4.6. Dismantling XLifter from vehicle

Of course, XLifter can be dismantled from the vehicle. The procedure is just the opposite of the installation, with the following differences:

- In case of temporary disassembly, you may leave the XLifter cable harness still installed. In such case, you only disconnect the connector C from the XLifter EAS unit (see the manual for installation, point 5c, chapter 4) and then plug the bypass plug into disconnected C connector.
- The EAS unit is detached from the 3M reclosable fastener by a strong pull perpendicular to the printed side (direction to the centre console). You cannot separate the fastener by pulling the EAS unit to either side. Do not remove the fastener left stuck on the original EAS unit. It holds very well. For reassembly into another vehicle, use a new piece of fastener (not supplied). It is a 3M SJ3550 3M reclosable fastener, 25 mm wide, 39 head per cm².

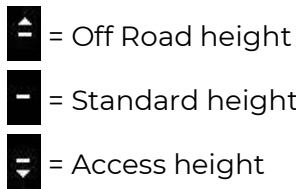
5. Instruction for use

The XLifter control module will allow you to set all required parameters and informs you about operating status. Think of it as a smart wireless remote for the air suspension.

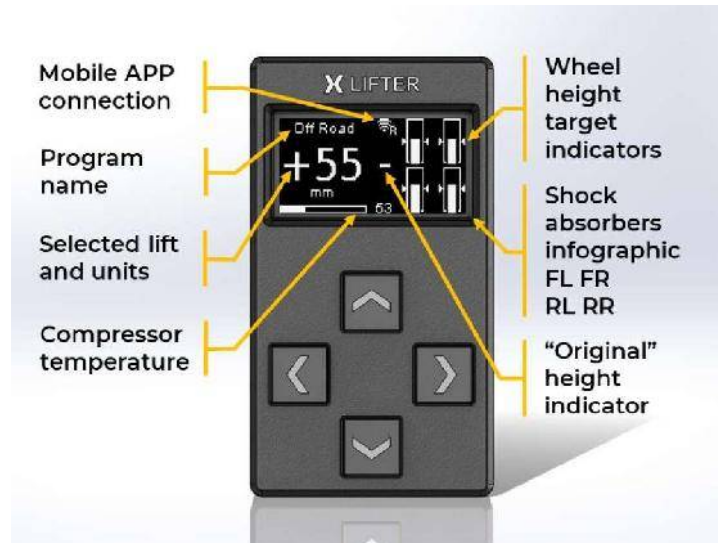
The control module has four arrow buttons ◀ ▲ ▼ ▶. In general, the ▲ ▼ buttons are used to change selected parameter and for scrolling in menus. Right button ▶ invokes menu or activate selected item. The left button ◀ serves usually as back or cancel.

The XLifter home screen shows the most important status information:

- Selected lift program / lift / units
- The “original” vehicle height indicator shows the position selected on the vehicle centre console as shown:



- Shock absorbers infographics. The outer edge represents the shock absorber housing, the white column is inner rod coupled with the wheel.
- The wheel target height indicator shows ideal wheel height in selected program when vehicle is on ideal flat surface.
- The compressor head temperature gauge. The “progress bar” is completely empty when temperature is 20 °C or less and completely full at 125 °C.
- Pressing the ▲ ▼ whilst in home screen increase/decrease lift program or change height in 5mm step, according to the active lifter function.



Overview of XLifter functions

All common features are accessible from the **main menu**.

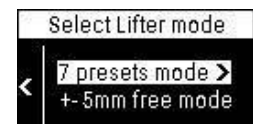
The main menu is invoked by pressing ▶ when at home screen.

Pressing ◀ when in main menu returns to the home screen.



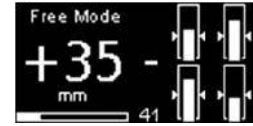
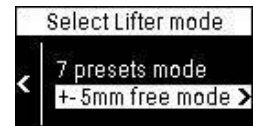
5.1. Lifter (7 presets mode): Change height in 7 predefined programs

1. Press ▶ to access the main menu.
2. Use ▲ ▼ to select “Lifter”, then “7 presets mode”, than ▶ to activate.
3. Use ▲ ▼ to change the lift program.
 - Sky Rocket – height + 75 mm.
 - Off Road – height + 55 mm.
 - One Inch Lift – height + 25 mm.
 - Aesthetic Lift – height + 15 mm.
 - Disengaged – height + 0 mm (default value).
 - Highway Drop – height - 15 mm.
 - One Inch Drop – height - 25 mm.
 - Super Drop – height - 35 mm.



5.2. Lifter (+- 5mm free mode): Free adjustment from -40 to +75 mm

1. Press ► to access main menu, select “**Lifter**”, then “**+5mm free mode**” and ► to activate.
2. Use the ▲▼ buttons to select desired height in 5 mm steps.
 - The currently set lift value is displayed
 - Holding the ▲ or ▼ button activates the button auto-repeat.
 - In Lifter (+5mm) mode, "Free mode" is displayed as the program name.



Warnings and limitations to the "Lifter" and "Lifter-free" functions

- The “original” Land Rover vehicle height control by the lever (D3) or buttons (D4) on the centre console remains unchanged after XLifter installation.
- The selected XLifter lift value is always added or subtracted to the “original” selected Land Rover height.
For example, when setting the “original” Off Road height (+55 mm) and "One Inch Lift" on the XLifter (+25 mm), the resulting increase of vehicle height will be +80 mm.
- XLifter is primarily designed to operate when the selected “original” vehicle height is "Standard". Of course, XLifter can also be used in the "original" height Off Road or Access, with the following limitations:
 - ⚠ In the “original” Off Road height, it is not recommended to lift the vehicle with XLifter by more than +25 mm permanently. The “Sky Rocket” (+75 mm) program is not available.
 - ⚠ In the “original” Access height, it is not recommended to drop the vehicle more than -30 mm. The „Super drop“ (-35 mm) program is not available.
- ⚠ Selecting higher lift or drop with the XLifter, then noted above, in “original” heights Off Road or Access, is likely to lead to the “yellow” suspension failure messages on the vehicle display. You can reliably dismiss these faults by setting XLifter to "Disengaged" (+0 mm) and restarting the engine.
- As a safety measure, in the range of 3 cm from the extremities (wheel fully articulated up or down), the XLifter does not affect the vehicle height (sensor voltages)
- ⚠ **Warning:** when in extreme lifts - “Sky Rocket” (+75 mm) or any lift program while the “original” vehicle height is Off Road, please be gentle with the accelerator pedal in case, when you have low-range engaged and you are steering hard to the left or right. The driveshafts to CV joints angle is very high and CV joints can be under lot of stress.
- Be gentle to the vehicle compressor! The compressor will overheat if the vehicle is lowered/raised several times in a row. A "Suspension raising slowly" message may appear on the vehicle display, or a "yellow" "Suspension failure" error may appear. Diagnostic fault would reveal the compressor overheating. When overheated (compressor head temperature exceeds 130 °C), the Land Rover EAS unit inhibits further operation until cooled down (approx. 10 minutes). When cooled, the error will disappear when the engine is restarted. **Watch the compressor temperature, do not raise vehicle when temperature is critical!**
- The “original” vehicle height indicator is software based - it compares the average vehicle height with calibrated height in a real-time. In some rare cases, the “original” height may be detected with a delay or incorrectly. This is not a malfunction; the indicator role is mainly informative.
- **If the ignition is switched on and the EAS unit cannot communicate with the control module for more than 5 minutes, the +0 mm "Disengaged" program will be set automatically.** This is a safety measure for the event of the control module malfunction (theft, damage, disconnection).



Warning: The Land Rover original EAS unit drops the height by 20 mm when vehicle speed exceeds 160 Km/h. **Do not use the XLifter while driving in traffic and do not lower the height at high speeds!**

5.3. Levelling: self-level the vehicle

The self-levelling feature is designed to level the vehicle on uneven surface into a pre-calibrated position. Main intent is to make in-car or roof top tent sleeping more comfortable.

XLifter is capable to level maximum tilt of approximately **4.5° in longitudinal (pitch) or traverse (roll) direction. Or in any direction if sum of inclines does not exceed 4.5°.** These limits are given by the scope of wheel articulations. Levelling function should be activated only in standard “Original” vehicle height to maximize available wheel articulation.

Activating the Levelling function:

1. Press ► to access the main menu.

2. Select “**Levelling**” and confirm with the ► button.

- The actual pitch and roll values are displayed. The longer mark on the left is pitch and shorter on the right is vehicle roll.
 - You may use ▲▼ button to toggle between levelling screens at any time.
 - The more detailed screen with shock absorbers info shows target wheel positions required to fully level the vehicle.
 - The compressor temperature screen allows temperature monitoring before and during levelling.



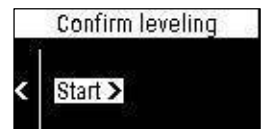
- If the roll or pitch (or both) angles are outside the range that can be levelled, the corresponding mark starts to blink and “!” is shown next to measured angle value. The detailed screen also indicates those wheels whose articulation is no longer sufficient.



3. Press ► to START LEVELLING.

4. Press ► to confirm levelling start.

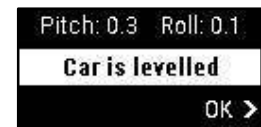
- You cannot return to previous menu from this point. The vehicle was instructed to set “unbalanced” wheel heights and is unsuitable for driving. To cancel the levelling (at any phase) and return the vehicle to normal state, exit the levelling function.
- The levelling progress and actual pitch/roll values are displayed. You may use ▲▼ buttons to toggle levelling screens.
- If neither pitch nor roll precision of 0.5° is not reached at the end of levelling cycle, one more fine-tuning levelling cycle is started automatically (FINE TUNING).



5. If you are not satisfied with levelling results at the end of levelling process, select OK by pressing ►, choose the “**Finetune levelling**” and press ►. The XLifter will re-launch the fine-tuning cycle from current vehicle position.



When the levelling process is finished, display shows “**Car is levelled**” message and actual pitch/roll values. This is when you turn the engine off, the car is levelled for sleeping.



When ignition is subsequently turned on and vehicle is levelled, the XLifter shows the “Car is levelled” screen to indicate, that levelling function is still active.



Warning: The levelling function must be exited before driving! Otherwise you start driving with unbalanced wheel heights, exposing yourself to potentially dangerous situations and you may even damage your vehicle!

Exiting the levelling function:

1. Press ► button to access levelling exit menu.
2. Use ▲▼ buttons to select the “Exit to drive”, confirm your selection with ►. XLifter will return to the previously selected lift program and vehicle will de-level (when engine is started).



Warning and limitations to the levelling function:

- To use whole wheel articulation and maximize the level-able tilt, please start the levelling while car “original” height is normal. XLifter notifies you with the advice message if car is in Access or Off-road height.
- ⚠ **Watch the compressor temperature levels. Never start levelling when the temperature is critical.** Let the compressor cool down before levelling!
- ⚠ Levelling is an experimental feature that uses capabilities of the air suspension to its maximum. Expect “yellow” suspension faults when levelling from extreme tilts (near or above limits). If such a fault occurs and vehicle is already levelled reasonably, turn off the engine. No reason to deal with it at this point. Exiting the levelling and starting the engine will dismiss these faults reliably.
- Due to the limitations of the air suspension system, do not expect levelling to end with a precision to tenths of degrees. The accuracy of 0.5° degrees can be considered satisfactory. You can always - even repeatedly - use the fine-tune function.
- The engine must be running during the levelling, otherwise the engine compressor does not work, and vehicle will not raise.
- ⚠ **Warning:** Close all doors before starting the levelling function to prevent possible door damage due to contact with surrounding ground. The Land Rover EAS unit may also prevent the levelling when doors are open. The “kick trick” also wouldn't work.
- Do not use electronic park brake (EPB) during levelling. It will cause unnecessary tension in the brake cables, which will counteract wheel movement. You may use the “P” gear instead in the automatic gearbox vehicles. Or if necessary – vehicle is probably on same slope – stay on the brake pedal during levelling but release it momentarily once per ~10 seconds to release tension cause by wheel movement.
- 💡 **The “kick trick”:** levelling cycle takes 80 seconds. For a small height change (especially in fine-tuning), the Air suspension reacts with significant delay. To force the air suspension to react immediately change the “original” height by lever/buttons at the centre console to the Off-road, followed quickly - as soon as vehicle start to raise - changing it back to normal.



Warning: NEVER EVER start the levelling function while driving!!! The wheels height will be set differently, which results to potentially dangerous situation. **NEVER leave the camping place without exiting the levelling function fist!**



Tip: Levelling is a feature designed to level the vehicle to a calibrated position for sleeping when camping. If you prefer to sleep with your head slightly up/down, just calibrate the XLifter in a position comfortable to you.



Tip: The rear axle has a larger wheel travel than the front one. The rear of the car can lift more than the front. If you position the vehicle uphill instead of downhill, the maximum alignment angle will be slightly higher - the levelling will lift the rear and lower the front.

5.4. Trailer assistant: easier trailer operations

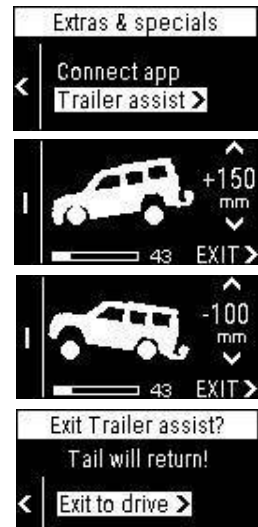
The Trailer assistant is a new feature brought by firmware 1.03. Both X1 and X2 models are supported.

Trailer assistant allows to lower or raise the car tail (trailer hook). In contrast with standard “flat” height change, the trailer assist changes car pitch. Resulting rotational effect greatly enhances adjustment range.



Activating the Trailer assistant function:

1. Press ► to access the main menu, select menu “**extras**” and select the “**Trailer assist**”.
 - Use ▲▼ buttons to adjust tail height
 - Before first adjustment is made, confirm “Is car stopped” safety prompt with ►.
 - Once tail height has been adjusted, you cannot return to previous menu. Like levelling, the vehicle was instructed to change pitch and is unsuitable for driving.
2. To exit the Trailer assistant, when active, press ► and confirm the “**Exit to drive**” in Exit Trailer assist menu. Vehicle will return to normal state. The logic is like the levelling function.



Warning and limitations to the Trailer assistant function:

- ⚠ In general, same warnings and limitation applies as for the Levelling. Functions are similar in principle. Please make sure you are familiar with them.
- ⚠ Please note that this is a preview feature, intended for “try & test” only. Graphics and underlying math will be further tuned.



Warning: NEVER start the Trailer assistant function while driving!!! The vehicle will change pitch, which results to potentially dangerous situation.



Warning: The Trailer assistant function must be exited before driving! Otherwise you start driving while vehicle is abnormally pitched, exposing yourself to potentially dangerous situations and you may even damage your vehicle!

5.5. Compressor temperature monitor

The temperature monitoring is a new feature brought by the XLifter X2 EAS unit. The car compressor is designed for short quick bursts operations, not for continuous use. When XLifter features are used extensively, demand for air refills increases. Therefore, it is important to monitor the compressor temperature.

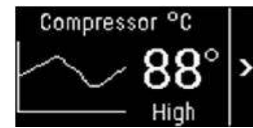
- Compressor temperature is displayed at the “home” screen at all times below the lift value.
- Pressing ◀ while at “home” brings special temperature screen with last 10 minutes temperature graph
- In addition, the compressor temperature is shown during all important functions (levelling etc).



The measured compressor temperature range is from 20 °C to approx. 150 °C. When temperature is below 20 °C, the <20 is displayed. When temperature exceeds 125-130 °C (depends on car model), compressor is turned off and let cool down by the car EAS computer.

The Xlifter software splits compressor temperature to three ranges:

1. Normal: <20 °C to 70 °C – all operations are possible.
2. High: 71 °C to 110 °C – watch the temperature closely, perhaps ease out a bit
3. Critical: above 110 °C – Let the system cool down before using any function which raises the vehicle! (includes levelling)



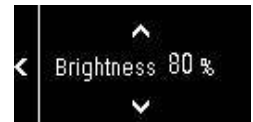
5.6. Menu “Settings”: User settings

The "Settings" menu contains the user part of the Xlifter setting - the setting items that make sense to be accessible during normal operation.

1. The “**Calibration**” item
 - Calibration of the Xlifter. Detailed description below in chapter 6.
2. The “**Brightness**” item

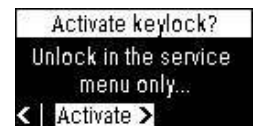


- The display brightness level setting. Adjustable with ▲▼ buttons in 0% to 100% range. Hold the button for auto-repeat.
- If the brightness is changed and no button is pressed for 5 seconds, Xlifter returns to the home screen automatically.



3. The “**Activate Keylock**” item

- The keylock is a safety measure designed for a case when the vehicle is driven by a 3rd party and you want to prevent him or her changing the air suspension settings. When activated, Xlifter returns to home screen. Subsequently, any key press just displays the “Keys are locked” message.
- Press the ► button to activate and ► to confirm. Keylock will be activated.
- **Keylock can be only deactivated in the service menu.** See chapter 7.



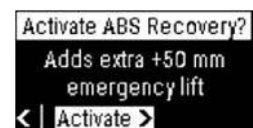
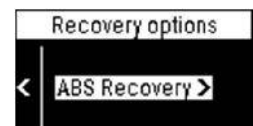
5.7. Menu “Extras & Specials”: Extra and recovery features

The "Extras" menu added in v1.01 contains extra or special features and recovery tools.

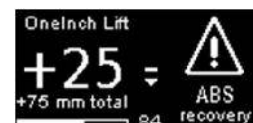
1. The “**Connect APP**” item
 - Creates local WiFi access point for remote Mobile Application.
2. The “**Trailer assist**” item – feature described in chapter 5.4.
3. The “Recovery options -> **ABS Recovery**”.



We hope you will never have to deal with this situation. When the ABS Sensor failure occurs in the Discovery 3/4/RRS, vehicle drop approximately 50mm to “safe height” –air spring are deflated almost to bump stops. If this happens in remote, isolated off road area, and you have no means to fix the ABS sensor, you can activate the “ABS Recovery” feature to re-lift the vehicle. Extra 50mm lift is added to all Xlifter functions.



Important: Never activate ABS recovery under normal circumstances. Use function ONLY WHEN ABS FAILURE OCCURS! Function does not fix the ABS sensor in any way! It only re-lifts the vehicle. Use this only as a temporary mean solution to get to nearest service!!!



6. Calibration

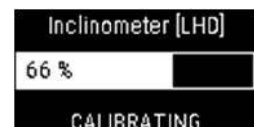
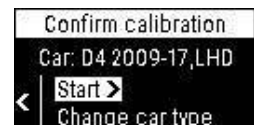
The XLifter must be calibrated before the first use.

The calibration is essential due to the following reasons:

- The XLifter measures and remembers the position of the vehicle when calibrating - both the longitudinal (pitch) and transverse (roll) tilt. This position is subsequently used as the zero tilt or a reference plane by the levelling functions – vehicle will self-level into the calibrated position.
- The XLifter measures and remembers the “standard” wheel positions. According to it, the XLifter calculates various internal parameters, such as safety limits, shock absorbers graphic, vehicle height detection etc.

Calibration procedure:

1. Move the vehicle on a flat, bump-free surface.
 - You can verify the vehicle pitch and roll angles with any bubble level. The vehicle will always try self-level into this position when levelling.
 - ⚠ **Important:** check that the surface beneath the vehicle is flat. Avoid having any wheel in a pit hole or at bump. All wheels should have same height from the surface plain. The better the calibration the better the lifting & levelling!
2. Ensure that the “Original” vehicle height is set to Standard.
 - The “Original” height means the one set by the lever/buttons at the centre console.
3. Ensure that the XLifter program is set to Disengaged (+0 mm) and that vehicle height is stable (raising or lowering is not still in progress).
4. Access the calibration menu and check correct car type.
 - a. While at “home” screen, press ► to access the main menu.
 - b. Use the buttons ▲▼ to choose „**Settings**“ and press ►.
 - c. Use ▲▼ to choose „**Calibration**“, and press ►.
 - d. Verify, that the correct car type and steering side is set. If it is not, use the “**Change car type**” and change settings. Refer to the chapter 4.5 Vehicle type and calibration settings.
 - e. The calibration will start when you confirm „**Start**“ with ►.
 - f. Allow about 30 seconds for the calibration to complete. The display shows the progress.
 - Do not shake with the car (abrupt moves etc.) during the calibrations for the best results. The tilt sensor is of high precision.
5. Run the calibration.
 - a. The calibration will start when you confirm „**Start**“ with ►.
 - Allow about 30 seconds for the calibration to complete. The display shows the progress.
 - Do not shake with the car (abrupt moves etc.) during the calibrations for the best results. The tilt sensor is of high precision.



Notice:



The XLifter need to be re-calibrated in following cases:

- Vehicle height calibration has been changed by Land Rover service tools – e.g. after wheel arm change, height sensors replacement, etc.
- The XLifter EAS unit has been physically moved (detached from 3M fastener).

The calibration procedure can be carried out repeatedly, at any time.

7. Service menu

The XLifter is designed for maximum ease of use. Therefore, the **configuration or technical functions are hidden in the "Service menu"**. The Service menu is not needed during normal operation. A special procedure is required to call it up.

Scrolling through items in the Service menu is identical to other menus - use the ▲▼ buttons to choose an item, the ► button to activate it and the ◀ button to step back.

7.1. Entering the Service menu

The **Service menu is displayed by holding down any of control module buttons when the module powers up**. That means to **press and hold down any button when the control module is off, then turning the car ignition on**, and *then* releasing the button (when the service menu is displayed)

Option 1 – disconnect the control module 12V power connector (**all vehicles**)

- a) Unplug the control module power plug from the cigarette lighter socket (the display will turn off).
- b) Press and hold down any button ◀▲▼►, then re-insert the power plug into the cigarette lighter socket. The control module will display the Service menu.

Option 2 – cycle the ignition (**Discovery 3**)

- a) Switch the ignition off by turning the ignition key into position 0. The control module display will turn off.
- b) Press and hold down any button ◀▲▼►, then turn the ignition on (key into position II). The control module will display the Service menu.

Option 3 – cycle the ignition (**Discovery 4**)

- Use especially if the control module power is "hardwired" to the vehicle 12V power.
- a) Switch off the engine by pressing "START ENGINE STOP" button.
- b) Stay inside the car and **lock it by** pressing the closed lock symbol on your **smart key**. The vehicle powers down the ignition-switched power rail (that includes cigarette lighter socket) and control module display will turn off.
- c) Press and hold down any button ◀▲▼►, then unlock your car with your smart key, then turn the ignition on by pressing the "START ENGINE STOP" button. The cigarette lighter socket powers up and the control module will display the Service menu.

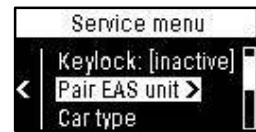
Quitting the Service menu:

The Service menu can be quit any time by pressing ◀. The XLifter will restart into a standard mode. Please allow 1-2 seconds to do so.

7.2. Service menu items description

1. Keylock [ACTIVE! / inactive]

- Activation/deactivation of the key lock. Locked keys can only be unlocked with this Service menu item.

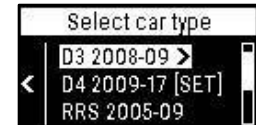


2. Pair EAS unit

- Wireless pairing of the control module and the XLifter EAS unit.
- The control module and the XLifter EAS unit are paired before shipping. Use this function when you need to pair new unit due to replacement.
- After activation, the control module scans available Bluetooth devices and offers them for pairing. The name of the XLifter EAS unit is "XLIFTER EAS". Do not pair the control module to any other devices.

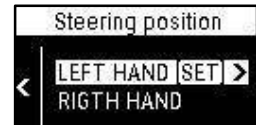
3. Car type

- Sets various internal parameters according to a vehicle type.
- Since firmware 1.00, this menu is also accessible via the Calibration user menu.
- Refer to the chapter 4.5 Vehicle type and calibration settings for vehicle type specifics.
- After setting the car type, you will be required to run calibration again.



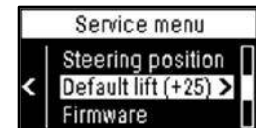
4. Steering position

- The XLifter EAS unit mounting position depends on steering wheel side and the tilt sensor behaviour must be adjusted.
- Set accordingly to your vehicle.
- Since firmware 1.00, this menu is also accessible via the Calibration user menu – refer to chapter 4.5.



5. Default lift (+nn)

- Sets default lift from -15mm to +55mm into which XLifter “boot up” after reset (battery disconnection, controller disconnected for a long time).
- Designed for 32” and bigger tires users – XLifter will act as true mechanical lift rods replacement.



6. Firmware

- *SW Version* - Shows the firmware version of the control module and the XLifter EAS unit. If the display shows “WAIT” instead of the EAS firmware version, wait for a couple of seconds until EAS unit is connected and retry the function again.
- *Controller update* - Firmware update of the control module. See chapter 8.
- *EAS unit update* - Firmware update of the EAS unit.
- *Serial numbers* - shows the serial numbers of both EAS unit and control module.
- *Comm Firmware* - shows identification of the BT modules firmware.



7. Clear calibration

- Deletes the XLifter calibration. XLifter will display “!NOT! CALIBRATED” and will need to be calibrated again.
- Useful when moving XLifter to another vehicle or selling it. Please do not let new user use the XLifter with wrong calibration!

8. Debug [ON]/[OFF]

- Displays the voltage values on each wheel height sensors instead of the shock absorbers infographics plus additional diagnostic information.
- Default setting is OFF, no need to switch on.

9. Preview features

- Enable or disable individual preview features / functions in this menu.

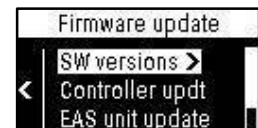
8. Firmware update

The control module uses built-in WiFi for firmware updates. New binary file, containing microcode for both control module and the EAS unit, is simply uploaded into the control module from any web browser. The Control module subsequently updates the XLifter EAS unit.

If the control module detects new EAS unit firmware upon power-up, upgrade is offered. EAS update can be also started manually from the Service menu.

Control module update procedure:

1. Download a new version of the firmware into your mobile phone or notebook.
 - Save the file for example to "My Files" or "Downloads" folder in your mobile. On the iPhone, do not save file to iCloud Drive, save/move it to "On My iPhone" instead!
 - The file must be saved into an internal storage because your mobile does not have an Internet access throughout the update procedure.
2. Enter the Service menu, choose "**Firmware**" ► and then choose "**Controller updt**" by pressing ►.
 - The control module creates a local WiFi network called "XLifterC". The password is shown on the display (second line, after p:)
3. Connect your mobile to the "XLifterC" WiFi network.
 - Mobile can indicate that the "XLifterC" network does not provide internet access, which is okay, keep the XLifterC WiFi connected.
 - For newer mobiles you might need to turn off the smart WiFi switch, otherwise it might disconnect from WiFi that does not provide internet access.
4. In mobile phone or notebook that has been connected to the "XLifterC" WiFi network open a web browser and type the "**192.168.4.1/update**" into the web page address box. If no "XLifter update" page is displayed, turn off mobile data in your cell phone and try again.
5. On the webpage displayed, hit the button "choose file" and select downloaded firmware file. Then hit the "update" button.
 - The control module update itself and then restarts automatically.



EAS unit update procedure:

1. Enter the Service menu, then menu "Firmware" ►, choose "EAS unit update" ►.
 - The display informs about the EAS firmware versions (current -> newly programmed).
2. Confirm the update – START UPDATE ►.
 - Let the update to proceed. Display informs you about the progress of the programming. The process takes about 1 minute.
 - When the process is finished the display shows a message "Update successfully finished!"
3. Press ◀ twice to exit the Service menu. The control module restart to a standard mode.



Warning: Do not turn off the ignition during the programming process! The control module would lose power, the programming process would be interrupted, and the EAS unit code would probably get corrupted ("bricked"), resulting to EAS unit malfunction. In such a rare case, please refer to chapter 10 FAQ & Troubleshooting , Repair of the "bricked" EAS module.

9. Technical specifications

XLifter X2 EAS unit				
Parameter	Min	Typ.	Max.	Unit
Temperature range	-40	-	80	°C
DC input voltage	10	13.3	16	V
Input current	0.5 (sleep)	40	120	mA
Wheel sensors input voltage	0	-	5	V
TX output power (EIRP) / Frequency Range (wireless comm)	-4 / 2.400	0 / -	6 / 2.4835	dBm / GHz
Wheel position regulation range from calibrated height (front / back axle)	-80 / -120	-	130 / 180	mm
XLifter X1 control module				
Temperature range	-30	-	70	°C
DC input voltage	5	13.3	16	V
Input current	-	40	150	mA
TX output power (EIRP) / Frequency Range (wireless comm)	-4 / 2.400	0 / -	6 / 2.4835	dBm / GHz

Declaration of conformity



Hereby the eXpedition tech s.r.o. declares, that the radio device type XLifter X2 EAS unit and a XLifter X1 control module complies with the EU directives no. 2014/53/EU, 2014/35/EU, 2014/30/EU and 2011/65/EU. The mentioned devices are in addition compliant with: ETSI EN 300 328, ETSI EN 300 440, ETSI EN 301 489-1, ETSI EN 301 489-3, EN 55032, EN 55024, EN 62368-1, EN 50581

For more details please visit the https://www.xlifter.com/ce_compliance/ web page.

Limited radio operation countries

	AZE
	RUS
	UKR

XLifter is a radio device that may be operated in accordance with CTU General Authorization VO-R/10/xxx (Czech Republic), resp. European Recommendation ERC REC 70-03. State abbreviations listed in the table after the symbol indicate countries where traffic on the used radio band (see technical specification) is restricted for this radio equipment.

Contact your local distributor for more information or contact your local telecommunications office.

Instructions about the WEEE




Correct Disposal of This Product (Waste Electrical & Electronic Equipment) (Applicable in countries with separate collection systems)

This marking indicates that the product should not be disposed of with other household waste. Please do not dispose of in your bin but instead take it to the nearest household waste recycling or civic amenity centre.

10. FAQ & Troubleshooting

Please note that this manual contains just a most important question. For the complete FAQ, see the <https://www.xlifter.com/faq/>

Question	Answer
<p>I will want to use the XLifter occasionally. Most of the time I want to have the control module disconnected (stored in a glove compartment etc.). Is this possible?</p>	<p>Perfectly possible. However, as a safety measure, the EAS unit sets the Disengaged (+0 mm) program – see the next question.</p> <p>It is also perfectly possible to have control module installed permanently and use the Keylock feature to prevent someone else “playing” with XLifter settings while driving your vehicle.</p>
<p>What happens in the event of the control module malfunction (mechanical damage, module stolen etc.)? - or - if the control module is disconnected from 12V socket for longer period?</p>	<p>The XLifter EAS unit continuously checks for availability of the control module.</p> <p>In case the ignition is on and wireless communication is failing for longer than 5 minutes, the Disengaged (+0 mm) program is set, i.e. EAS unit starts to behave as it's not present in the car at all.</p> <p>This function solves a situation where the control module is damaged while the vehicle is set to a driving-unsuitable mode (for example, it is levelled for sleeping). It is a safety measure.</p>
<p>Wouldn't the permanently installed EAS unit discharge a car battery in a long run?</p>	<p>Do not worry, you can leave the XLifter in the vehicle for years without affecting the battery. The EAS unit is put to sleep with the vehicle. Quiescent current is below 0.5 mA - negligible draw, less than the self-discharge current of the battery.</p>
<p>Can the control module be connected to a permanent supply (not switched on by the ignition key)?</p>	<p>XLifter is not designed for it. The control module will stay lit up, lure thieves and consume car battery power. It would also cause the control module to report a loss of communication with the EAS unit once the car gets to sleep mode.</p> <p>Power the control module from an ignition switched supply rail.</p>
<p>OMG, the control module keys are locked, I cannot unlock them, I am lost 😞</p>	<p>The Keylock is a safety measure. If you cannot unlock them, it is working right 😊</p> <p>Deactivate the keylock in the service menu - chapter 7.</p>

Issue	Solution
The levelling function shows a senseless or too high tilts angles.	The EAS unit has probably moved -> check the unit attachment and the 3M fastener. When fixed, perform the calibration again.
The vehicle tilts to side when ride height is changed by the XLifter.	Incorrectly set vehicle type -> Set the correct one in the service menu, see chapter 7.
When changing the "original" ride height on the centre console of the vehicle, the shock absorber infographics show the opposite wheel movement (some wheels "drop", others "climb").	Incorrectly set vehicle type -> Set the correct one in the service menu, see chapter 7.
One or more of the target wheel height indicator is missing in the shock absorber infographics.	Incorrect wheel calibration -> Re-calibrate, chapter 0.
<p>The control module reports a "NO EAS RESPONSE" error.</p> 	<p>Wireless communication with the EAS unit is failing. Control module and EAS unit are not paired -> Pair, Service menu -> Pair EAS unit, see chapter 7.</p> <p>Check the EAS unit installation and connectors. The green LED must blink.</p> <p>The control module is connected to a permanent power supply and the ignition is OFF. -> Power the control module from an ignition switched supply rail.</p>
The vehicle reacts to the height changes sometimes with delay, especially when height change is small.	<p>This is normal. The Land Rover® air suspension unit reacts with 10-60 seconds delay for small height changes. In addition, height changes are inhibited in certain conditions (hard acceleration/deceleration, cornering for example) to increase safety. The vehicle just waits when it is safe to adjust height.</p> <p>-> Please give the vehicle some time to adjust height.</p> <p>-> You may also use the "kick trick" - see chapter 5.3.</p>
"Bricked" EAS module cannot be programmed as described in chapter 8 Firmware update. Typical behaviour: the control module display shows "Synchronizing" when update is started for 1 minute and then it times out.	<p>Repair procedure for the "bricked" EAS module (in case of interrupted programming)</p> <p>-> please disconnect and reconnect the C connector at the EAS unit within 1 minute since the update has started (while "Synchronizing" is displayed). This will reset the EAS unit and programming will be restored.</p>

11. Warranty conditions

The warranty is valid in compliance with generally accepted warranty terms. The appearance, functionality, and completeness of the product are checked before shipment. Any claim must be made of the seller within the warranty period. The warranty is two years from the date of sale.

12. Contacts and support

If you have any trouble or if you have any doubts that something is not working properly, please:

- Study the FAQ section in this user manual.
- Join the “XLifter user support group” Facebook group.
- Contact your dealer.
- Mail the info@xlifter.com

Space for custom notes:

Date of production:

Date of sale/installation:

Serial number:

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