Introduction

This document outlines the correct procedure for using the EEL Series Electronic Engineers Levels. Each section details the functions, calibration steps, and maintenance guidelines to ensure reliable performance throughout the life of the product. Note that specifications and dimensions are not included; please refer to the product datasheet for this information. The datasheet is available to download from the EEL product pages on our website, or by clicking the link below if viewing this document on a computer, tablet, or smartphone:

Electonic Engineers Level - Product Datasheet

Display and Button Layout

The EEL features an OLED display with optional display modes and units of measurement (see overleaf for more details). The user-adjustable settings are controlled using push switches; the display layout and switch functions are shown below:

Note: While the EEL is in graphical mode, the "change units" button adjusts the sensitivity scaling, whereas in numerical mode it changes the unit of measurement. The selected measurement unit is saved and transferred between modes when the display mode is changed. All user-adjustable settings and modes are retained after the level is switched off.

Powering the Device On/Off

To Switch On

Press & hold the Power Button for 2 seconds.

To Switch Off

Press & hold the Power Button for 2 seconds.

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Display Modes & Settings

Display Modes

The EEL has two display modes: A graphical mode, which replicates a bubble level; and a numerical mode, which displays the readings as values alongside an arrow to indicate the highest end of the level. The DSP button is used to toggle between the modes. In both cases, a cross-vial graphic is displayed on the left to help with upright positioning on cylinders.

Graphical Display Mode

Numerical Display Mode

Units of Measurement

The measurement units can be set to mm/m, arc seconds, or minutes and seconds. The UNIT button cycles between these options, and the EEL must be in numerical mode to adjust this setting. The unit selected in numerical mode is applied to the graphical mode. To change the unit in graphical mode, switch to numerical mode, adjust the setting, then switch back.

mm/m

arc minutes(’) and seconds(”)

arc seconds(”)

Sensitivity Setting

Controls the bubbles sensitivity to change in angle. E.g. In the left image the sensitivity is 80”per graduation, and the bubble is 1 graduation to the right which indicates that the tilt is 80”. The sensitivity can be displayed in mm/m, or arc seconds (see above) and the following options are available: 2”, 4”, 10”, 20”, 80" seconds per graduation, or 0.01, 0.02, 0.05, 0.1 and 0.4 mm/m per graduation. The > < button cycles between the available settings.

Example with 80”sensitivity per graduation

Example with 20”sensitivity per graduation

Absolute/Relative Mode

The ABS/REL key toggles between absolute and relative modes. When relative mode is applied, a new zero position is set in the current position and REL is displayed. Pressing ABS/REL again cancels relative mode and returns to absolute mode (ABS). Note that the measurement range is not extended by this feature.

Settings Menu

The settings menu is accessed by pressing the 'Menu' button. Use the up/down keys to scroll through settings and the right arrow to open them. Pressing 'Menu' again exits to the previous screen. All settings are saved after shutdown.

Brightness

The brightness level can be adjusted between 1 (dimmest) and 10 (brightest). Press the down arrow button to decrease brightness and the up arrow button to increase it. Each press increments by 1.

Bluetooth

The Bluetooth device within the level can be toggled on or off in this menu. When enabled, Bluetooth allows the EEL to connect to a mobile device via the Level Developments app.

Filter

Controls the low-pass damping filter. A high value gives a faster response to changes in angle, while a lower value slows the response & improves stability. The options are 0.5Hz, 0.25Hz and 0.125Hz.

Auto Sleep

Can be set to ON or OFF. With auto sleep mode enabled the Level will automatically power down after a set time of (push button) inactivity. The timer is set via the 'Sleep Timer' setting.

Sleep Timer

Controls how long the device remains active after the last button press. When the timer expires, the device powers down automatically. The available options are 1, 2, 5, 10, or 30 minutes.

Zero Position Recalibration Routine

The EEL includes a zero-position recalibration function which is completed using the steps below. Performing this routine will overwrite the existing zero position used in absolute (ABS) mode, and the new position will be stored in non-volatile memory. The new position is retained even if the EEL is powered off, or if the battery is depleted. This process can be cancelled at any time by pressing the 'Menu' button:

1. Identify a flat surface that is mechanically stable and cleaned thoroughly to remove any dirt or dust. The surface does not need to be perfectly level but must be within the range of the EEL (±300" or 1.45mm/m). Note: a surface which is perfectly level will give the best results.

2. Clean the base of the level using alcohol and a lint-free wipe to remove particles and contaminants.

3. Place the EEL onto the surface and hold the 'ABS' button for 5 seconds, the message on the right will be displayed:

4. Leave the level stationary for 10 seconds, and memorise the spot where the level is positioned on the surface:

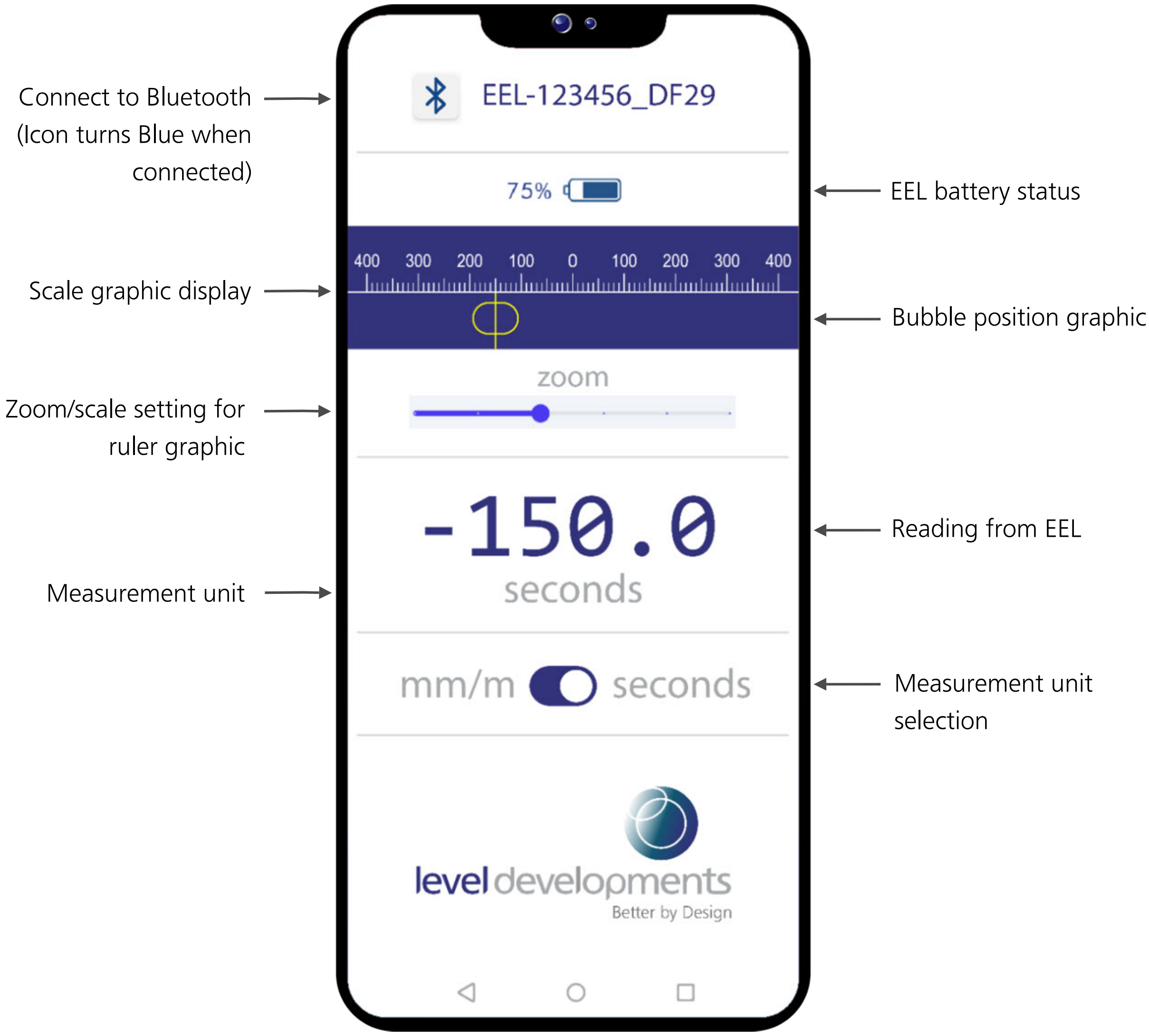
5. After 10 seconds, the EEL will automatically display the left screen below. When it does, turn the base 180° on the spot (lift to avoid scratching). Position the base in the same location as step 4, except with the screen now facing the opposite direction. The EEL will detect the movement and display the rightmost screen below. Leave the level stationary for 10 seconds.

6. After 10 seconds, the level will show "Zeroing Complete" and the menu button can be used to return to the main menu.

7. The re-zeroing process is now complete. The new position should be checked by turning the level 180° on a known level surface, and ensuring the reading is 0° in both directions.

Android & iOS Mobile Application

The EEL is compatible with a dedicated Level Developments application which is available for both Android and iOS platforms. This app allows for remote reading of the level using Bluetooth connectivity, provided the mobile phone is Bluetooth-enabled and within range. To download the app, search for 'EEL app' in the relevant app store. Alternatively, (if viewing this document on a smart-device), touch the relevant app store link below. Once installed, press the 'Connect to Bluetooth' symbol at the top of the screen (as indicated below) to find the EEL listed among the available devices, then touch the EEL's device ID to establish a direct connection. The app interface and functions are shown below:



Download on the App Store

GET IT ON Google Play

Battery Information

The device uses a lithium-ion rechargeable battery for continuous use for up to 40 hours. Connecting the EEL device to the power supply provided will charge the internal battery whilst simultaneously providing power to the device itself, if necessary. This enables full operation even when the battery is discharged.

The table below shows the specifications for the internal lithium polymer battery.

Parameter	Rating	Unit	Notes
Battery type	Lithium-ion	NA	Rechargeable Lithium-ion Polymer Battery
Output Voltage	3.7	V	
Storage capacity	1,900	mAh	0.2C Discharge
Discharge time	≤40	Hours	In continuous use

If storing the EEL for long periods of time without use, the battery should be charged/discharged to approximately 40-60% of its capacity. This helps to preserve the battery's health and prevent degradation over time. Storing a battery at a very low charge (below 20%) or fully charged (100%) can lead to capacity loss and a reduction in life span.

Caution:
Do not attempt to open or service the battery pack, it should be replaced by Level Developments staff only. Do not crush, puncture or short external contacts. Keep battery away from children. Do not dispose of battery in fire or water. **Improper use of the battery pack can cause fire.**

Charging The Device

The internal battery is charged using the USB (Type-C) connection located on the top of the level. The EEL can be used with any standard 5V USB charging port.