



 **KELLER**

Operating Instructions

LEO Ultimate

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OPERATING INSTRUCTIONS

LEO ULTIMATE

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1. GENERAL INFORMATION AND SAFETY INSTRUCTIONS

This manual contains important information on the correct use of the device. For a detailed explanation of the installation and commissioning of the measuring instrument, please read this manual carefully. Follow the safety and installation instructions described in this manual. Also follow national laws, standards, and regulations. This manual is an essential part of the device and must be accessible to authorized personnel at all times.

This manual applies to the firmware version specified in the document information. Device functions, menu structures, and operating procedures may differ in other firmware versions.

2. DESIGN AND FUNCTION

2.1 OVERVIEW

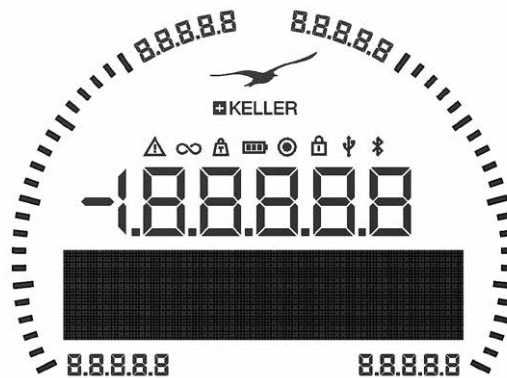
The LEO Ultimate is a high-precision digital gauge designed for mobile and stationary pressure measurement applications. The device consists of the main instrument housing with integrated display, control buttons, pressure connection and offers USB-C and Bluetooth interfaces.

2.2 KEY FEATURES

- Accuracy up to 0,01 %FS
- Absolute and relative pressure measurement
- Data logger with high storage capacity
- USB-C and Bluetooth connectivity
- Large backlit LCD with excellent readability
- Premium buttons with tactile feedback
- Robust and elegant metal housing

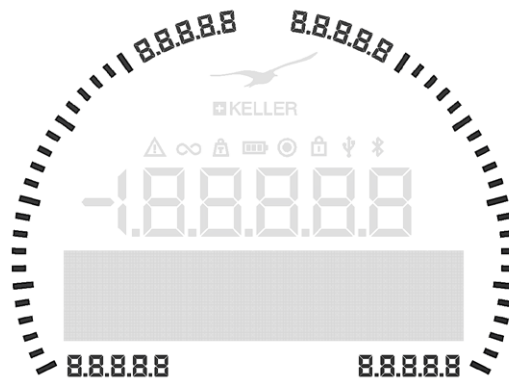


2.3 DISPLAY AND SYMBOLS



SYMBOL	DESCRIPTION
-1.8.8.8.8	Main pressure value display. Shows the current measured pressure value with up to 5.5 digits, depending on the selected resolution.
⚠	Error / Warning indicator. Signals an active warning, error state, or device condition that requires user attention. May blink for critical events like overpressure.
∞	Continuous mode active. Indicates operation in continuous mode without automatic power-off.
⚖	Tare active. Indicates that a tare offset has been applied and the displayed pressure value is referenced to a new zero point instead of the actual sensor value.
🔋	Battery indicator. Shows the current state of charge of the batteries. Used to monitor remaining energy during measurement and recording.
📄	Logger / Record active. Indicates that a measurement record is ready for recording or currently recording data. The inner circle of the symbol is blinking when data recording is active.
🔌	USB connection active. Indicates that a USB connection to a host device is established.
📶	Bluetooth active. Indicates that Bluetooth is enabled and the device is connected. The symbol blinks when the device is advertising.
8.8.8.8.8	Bar graph pressure scale with fixed 5-digit resolution. Displays the reference scale for the bar graph representations.





Left bar graph

Indicates the pressure relative to the full-scale range and is permanently displayed as a safety-relevant reference. Depending on configuration:

- Standard mode: relative or absolute range (e.g. 0 ... FS)
- Extended mode: extended display range
Relative: -1...FS
Absolute: 0...FS+1 bar

The bargraph provides a continuous visual indication of the current pressure level related to the defined range.

Right bar graph

Configurable graphical representation of the measured pressure. Depending on the selected display mode, the bargraph may operate as:

- Autoscaling display, min/max indicator
- Fixed mode with optional drag indicator

The right bargraph can be enabled or disabled via the device settings and adapts to the selected measurement mode and bar graph setting.

2.4 CONTROL BUTTONS

The device is operated using four front buttons. Depending on the current operating state, the buttons provide navigation, confirmation and shortcut functions. A short press and a long press can trigger different actions. The button functions depend on whether the device is operated outside the menu or within the menu:

- On the home screen (outside the menu), only the blue-labeled button functions are active.
- Inside the menu, only the white-labeled button functions – navigation and confirmation – are active.

Outside Menu

NR	SYMBOL	SHORT PRESS	LONG PRESS (> 2S)
1		Switch device on	Switch device to sleep mode (ON / OFF)
2		Open settings menu	Open settings menu and jump directly to Measurement settings
3		Switch backlight on	Direct action: Reset Min/Max
4		Confirm action or selection. If no action is available: no function	Direct action: Tare and undo Tare



Inside Menu

NR	SYMBOL	SHORT PRESS	LONG PRESS (> 2S)
1		Navigate one level back	Direct return to the home screen, even from deeper configuration levels
2		Navigate up within the menu	No additional function
3		Navigate down within the menu	Direct action: Backlight ON / OFF
4		Confirm selection or setting	No additional function

2.5 SCOPE OF DELIVERY

The standard delivery includes:

- Digital Gauge LEO Ultimate
- Calibration certificate with 5 measuring points
- USB-C cable / USB-A to USB-C adapter
- 2 × 1.5 V AA lithium batteries (Energizer Ultimate Lithium L91)
- Quick start information and safety leaflet

Additional accessories may be included depending on the selected configuration and options.

3. OPERATION

This chapter describes the operation of the LEO Ultimate. It explains how the device behaves during measurement, how different operating modes are selected, and how data logging and device settings are handled. The LEO Ultimate follows a state-driven operating concept. Depending on the selected mode, logger configuration, and user interaction, the displayed information and available actions change accordingly.

3.1 OPERATING CONCEPT

The operation of the LEO Ultimate is divided into two functional levels:

- Runtime operation: Measurement, display updates, logging, and shortcut actions
- Menu operation: Configuration of measurement modes, logger behaviour, measurement settings, display and device settings
- Mobile and Desktop app: Advanced configuration, data retrieval, and remote operation of the pressure, mode, and logger on the homescreen



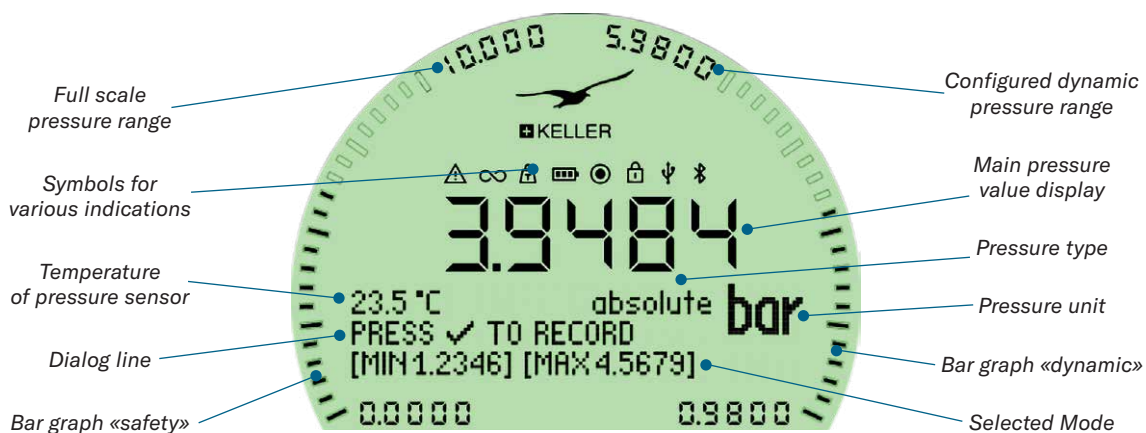
3.2 MAIN SCREEN

The main screen displays the current measurement values and essential status information. Depending on the selected operating mode, profile, and display settings, the content and layout of the main screen may change.

Typical information shown on the main screen includes:

- Current pressure value
- Unit of measurement
- Active operating mode or profile
- Status indicators (e.g., min/max, logger status, warnings)
- Battery status

The main screen is the default display after switching on the device and serves as the starting point for all further interactions.



3.3 BASIC NAVIGATION

Navigation within the device is performed using the control buttons.

- Press the settings/menu button to open the main menu. Within the menu, use the navigation buttons to scroll through entries and adjust parameters. Confirm a selection by pressing the confirm button. Use the back function to return to the previous menu level or exit the menu.
- Menu navigation follows a consistent hierarchical structure. Changes to settings take effect immediately unless otherwise indicated.
- Outside the menu (homescreen), the device operates directly on the main screen. In this state, selected buttons provide quick access to frequently used functions through shortcuts, without requiring menu navigation.
- Button functions may change depending on the current screen and operating mode. If a function is not available in the current context, pressing the button has no effect.
- The data logger operates independently from menu navigation and can be active across different measurement modes. Depending on the configuration, logger behaviour may interact with the selected operating mode, but it does not change the fundamental navigation concept.

The user interface provides clear on-screen prompts to guide the user through actions when required.



3.4 MEASUREMENT MODES

The LEO Ultimate offers several measurement modes. Each mode defines how pressure values are interpreted and displayed based on the current measurement configuration. Measurement modes are leading and every mode may be executed independently or in combination with the data logger, depending on the configuration.

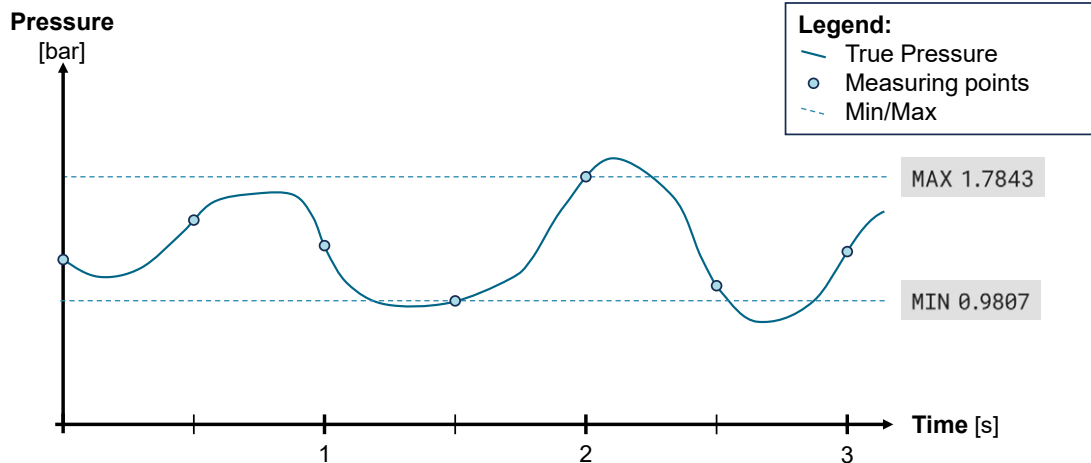
MODE	PURPOSE	KEY PARAMETERS	OUTPUT / RESULT	NOTES
Standard (Min / Max)	Continuous pressure monitoring	Min / Max reset	Current value + Min / Max	Default mode
Peak	Capture dynamic pressure peaks	Measurement rate (auto)	Peak Min / Max values	For high dynamic pressure peaks. Increased battery consumption may occur due to the higher measurement rate.
Leak	Detect pressure change over time	Leak duration	Pressure difference (Δp)	
Rate	Measure pressure change rate	Rate interval	Rate of change (e.g. bar/s)	
Alarm	Monitor pressure limits	Pressure limits (thresholds)	Alarm indication	Alarm limits can only be set/configured using the Pressure Suite software.

3.4.1 Standard Mode (Min / Max)

In Standard mode, the device continuously measures pressure and tracks the minimum and maximum values. This mode is suitable for general pressure monitoring, testing, and calibration tasks.

Settings:

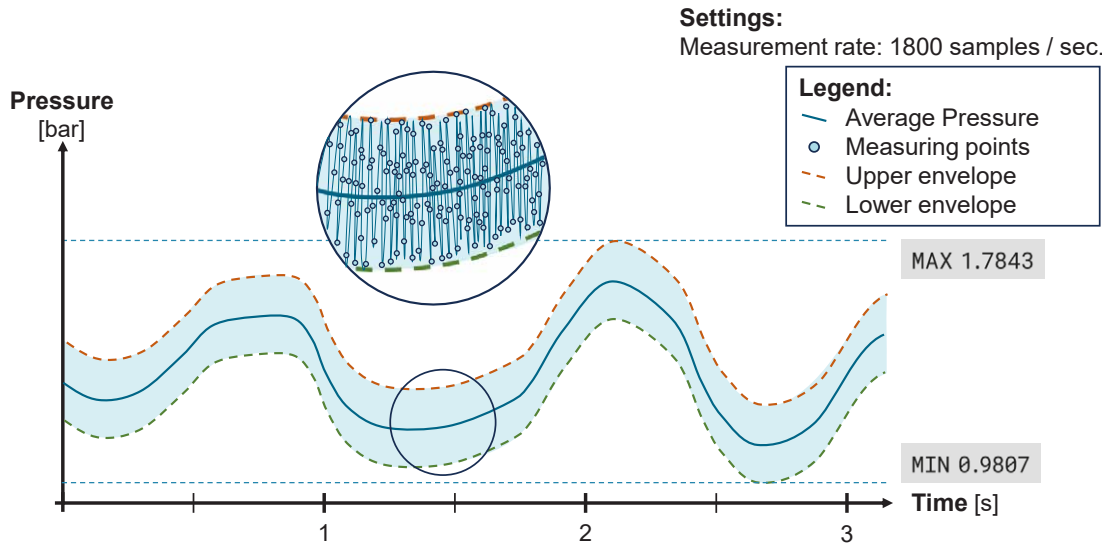
Measurement rate: 2 samples / sec.



3.4.2 Peak Mode

Peak mode is designed to capture dynamic pressure peaks. The device continuously updates and displays the detected minimum and maximum peak values, allowing transient events to be observed.

In this mode, the internal sampling rate is automatically set to maximum, allowing transient pressure events down to 0.6 ms to be captured.

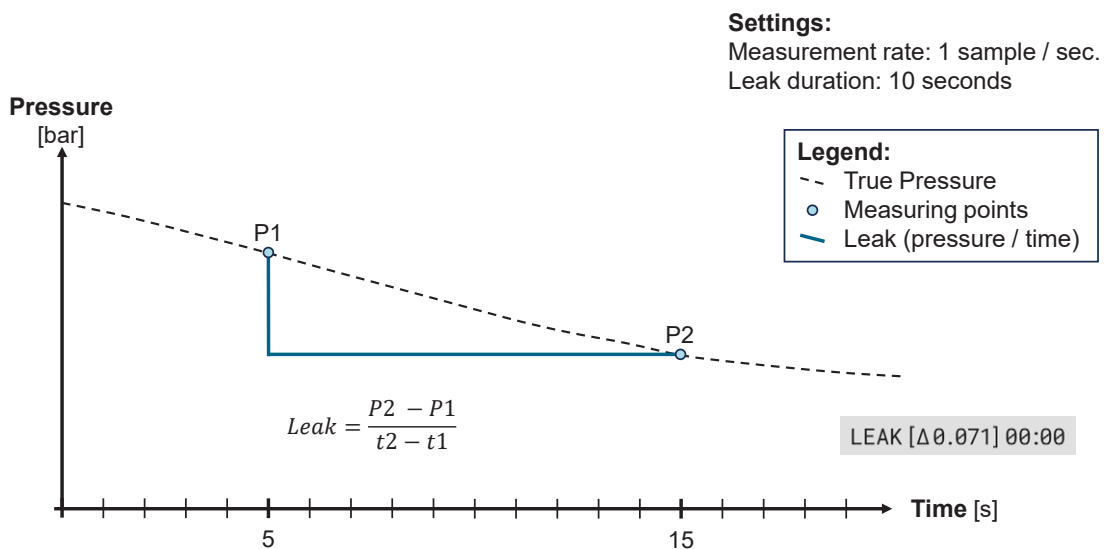


3.4.3 Leak Mode

Leak mode determines the total pressure change over a defined time period in order to evaluate potential leakage.

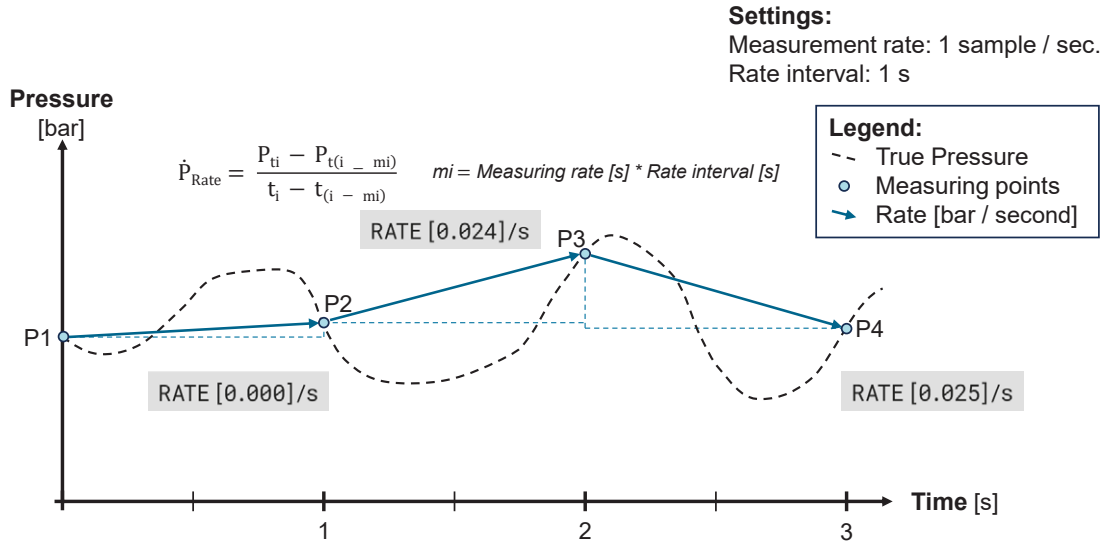
Depending on the configuration:

- The leak mode must be started manually from the homescreen.
- The pressure difference (Δp) between start and end is calculated.
- Measurements can also be recorded using the data logger. In leak mode, the recording duration is defined by the leak mode settings instead of the logger settings.
- The user is guided through the measurement process by clear on-screen prompts.



3.4.4 Rate Mode

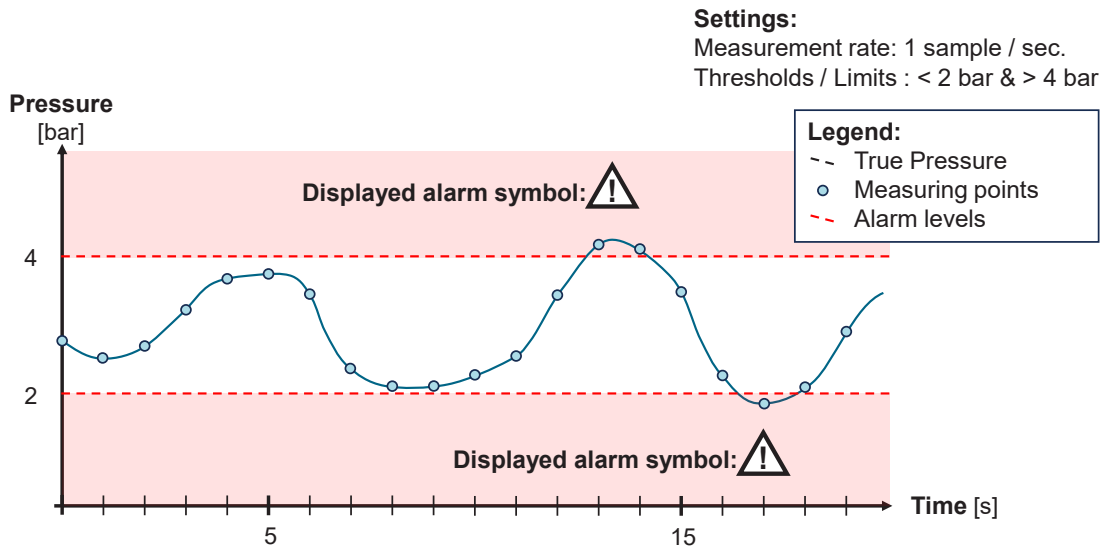
Rate mode shows how quickly the pressure is changing over time by calculating the rate of change within a defined interval. The calculated rate value is continuously updated and shown on the main screen.



3.4.5 Alarm Mode

Alarm mode compares the measured pressure against configured minimum and maximum alarm thresholds.

The device displays the current alarm limits and indicates when a threshold is exceeded. Alarm values/settings can only be set or configured via PressureSuite Mobile or PressureSuite Desktop.



3.5 DATA LOGGER FUNCTION

The optional integrated data logger records measurement values based on the selected mode. Logging can be combined with all available measurement modes.

The behavior of the data logger is defined by configurable parameters such as:

PARAMETER	DESCRIPTION	OPTIONS / VALUES	NOTES
Start Condition	Defines how logging is started	Manual / Delay (1h, 3h, 6h, 12h, 24h, Custom)	Delay requires defined delay time
Stop Condition	Defines how logging is stopped	Manual / Time-based (after 1h, 24h, 7d, Custom)	Automatic stop after defined duration
Save Interval	Defines how often values are recorded	Time-based (1s, 10s, 1min, 1h) / Measurement rate / Custom	Affects storage capacity
Record Channels	Defines which values are stored	Pressure (abs. and rel./ Pressure Type) / Temperature (ON/OFF)	Temperature optional
Memory	Defines storage behavior when memory is full	Mode (Stop when full / Overwrite) / Overview / Cleanup (delete all records / delete latest records)	«Overwrite» replaces oldest data

Once initiated, the logger follows the configured sequence automatically without further user interaction.

During active recording, device settings cannot be modified. To change settings, the recording must first be stopped or cancelled. The backlight can still be activated during recording to improve visibility.

The data logger records sensor values based on the selected measurement mode and timing configuration. Logged values represent the raw sensor data.



Depending on the configuration, the logging process follows a defined sequence of states. The user is guided through this sequence by clear on-screen messages.

Typical messages include:

STATE / MESSAGE	MEANING	DESCRIPTION
PRESS ✓ TO RECORD	Ready state	Logger is configured and waiting for start
REC TIME LEFT xh	Remaining recording time	Displays the remaining time until automatic stop, based on the configured stop condition
RECORDING IN mm:ss	Delay active	Logging will start after the configured delay time has elapsed
RECORDING mm:ss	Active recording	Indicates active data recording and shows the elapsed recording time
PRESS ✓ TO STOP	Stop requested	User initiated stop process
REC SAVED	Data saved	Indicates that the recorded data has been successfully stored in memory
MEMORY TOO LOW / DELETE RECORDS TO START	Insufficient memory	Available memory is not sufficient for the current logging configuration. Delete existing records or free memory before starting the recording.
MEMORY TOO LOW / CHANGE DATALOGGER CONFIG	Configuration required	The current logger configuration is not valid and cannot be executed, even with empty memory. Adjust the logging interval, duration, or selected channels before starting the recording.

The sequence of messages depends on the selected logger configuration and may vary depending on start condition, delay, stop condition, and memory settings. Configuration-related messages such as «MEMORY TOO LOW» or «CHANGE DATALOGGER CONFIG» indicate that the current logger setup is not valid and must be adjusted before recording can start.

The logger symbol and the displayed messages indicate the current logger state at all times.

The behavior of the data logger is defined by the combination of start condition, stop condition, and configuration parameters.

3.6 MEASUREMENT CONFIGURATION

Measurement behavior is defined by the combination of these configuration parameters.

Depending on the selected measurement mode, not all parameters are active or relevant.

PARAMETER	FUNCTION	OPTIONS /VALUES	NOTES
Measurement Rate	Defines how frequently the pressure signal is updated	1 Hz, 2Hz, 10 Hz, 50 Hz	Influences dynamic response and rate calculations
Tare	Applies an offset to the measured pressure value	Tare / Undo Tare	Affects displayed values only
Min / Max Reset	Clears stored minimum and maximum values	Reset	Applies to standard and peak modes
Leak Duration	Defines the measurement time for leak calculations	Manual, 1 min, 10 min, 30 min, Custom	Used in leak mode
Rate Interval	Defines the time base for rate calculation	1s, 10s, 1 min, Custom	Used in rate mode
Pressure Type	Defines the reference for pressure measurement	Absolute / Relative	Affects all displayed values and the left bargraph



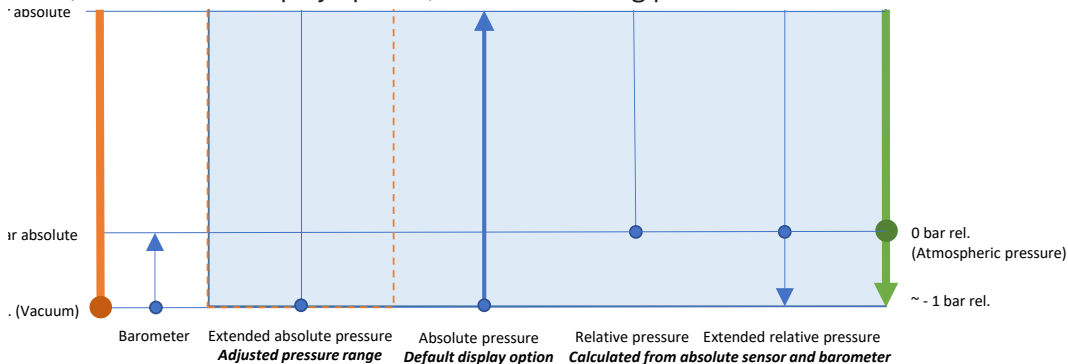
3.7 PRESSURE TYPE

The LEO Ultimate allows switching between absolute and relative pressure.

The device measures pressure using an absolute pressure sensor. Relative pressure values are calculated using the current atmospheric pressure measured by the integrated barometric pressure sensor as a reference.

- **Absolute Pressure:** Pressure referenced to vacuum (0 bar absolute).
- **Relative Pressure:** Pressure referenced to ambient atmospheric pressure.

The figure below illustrates the relationship between the underlying absolute sensor measurement, the available display options, and the resulting pressure values.



Relationship between the adjusted pressure range of the absolute pressure sensor and the available display options. Changing the pressure type or display option affects only the displayed value.

The selected pressure type has a direct influence on all displayed pressure values.

The specified accuracy remains referenced to the full scale (FS) of the absolute pressure sensor, regardless of the selected pressure type.

When switching between pressure types:

- The measured pressure value is recalculated according to the selected pressure type.
- The bar graph display (left bar graph) is updated accordingly.
- Stored minimum and maximum values are reset to reflect the new reference system.

The pressure type setting applies globally to all measurement modes and logger functions.

Changing the pressure type does not alter the underlying sensor signal, but only the reference used for display and evaluation. The selected pressure type is indicated on the display.



3.8 TARE FUNCTION AND INFLUENCE

The tare function offsets the measured pressure value. All displayed values shift accordingly, except those on the left bar graph.

The influence of the tare function depends on the selected measurement mode:

- Standard Mode (Min / Max): The displayed minimum and maximum values are offset by the applied tare value.
- Peak Mode: The displayed peak minimum and maximum values are offset by the applied tare value.
- Leak Mode: The tare function has no influence on the calculated pressure difference (Δp).
- Rate Mode: The tare function has no influence on the calculated rate of change.
- Alarm Mode: The tare function has no influence on the configured alarm thresholds.

The tare offset affects only the displayed values and does not change the underlying sensor measurement or the recorded data. Applying or changing the tare offset resets the displayed minimum and maximum values.

3.9 DISPLAY AND DEVICE SETTINGS

Device-specific settings are configured via the settings menu and affect the overall behavior and appearance of the device.

The settings are divided into two main categories: Device settings and Display settings.

Display Settings

Display settings define how measurement values and graphical elements are presented.

ITEM	FUNCTION	OPTIONS / VALUES	DEFAULT	NOTES
Units (Pressure / Temperature)	Defines the measurement units	Various configurable units (e.g. bar, mbar, psi, °C, °F, K, ...)	bar, °C	Affects all displayed values
Digits (Resolution)	Defines number of digits	4 / 5 / 5.5	5	Influences readability and precision
Bar graph (left)	Displays pressure relative to calibrated full-scale range	Standard, Extended	Standard	-
Bar graph (right)	Configurable graphical representation of pressure	Visibility: Show/Hide Scale Mode: Auto Scale / Fixed Drag Indicator: ON/OFF	Show / Fixed / Off	Supports autoscale, min./max. or zoom display modes
Refresh Rate	Defines how frequently the display is updated	1 Hz / 2 Hz / 5 Hz / 10 Hz	2 Hz	Does affect power consumption
Backlight	Defines display illumination behavior	Auto-Off: 10s / 30s / 60s / 120s / Off Brightness: 20% / 40% / 60% / 80% / 100%	Auto-Off: 10s Brightness: 20%	Display brightness has a significant impact on battery lifetime

The configured settings apply globally across all measurement modes unless otherwise specified. Changes take effect immediately unless otherwise indicated. Certain settings may temporarily be restricted during active measurements or data logging. Depending on the configuration, some settings or functions may be hidden and therefore not visible in the user interface.



Device Settings

Device settings control system behavior and general device functions.

ITEM	FUNCTION	OPTIONS / VALUES	DEFAULT	NOTES
Bluetooth	Enables or disables wireless communication	ON / OFF	OFF	
Bluetooth Pairing	Defines how the device establishes a Bluetooth connection	Standard: MidRange Eco: ShortRange Power: LongRange	Standard	Energy-saving reduces power consumption
Auto-Off	Defines the time of inactivity before the device enters sleep	Never, 5 min, 15 min, 60 min, custom	15 min	Disabled in continuous mode
Reset	Resets device configuration	Reset to default, Factory reset	-	See notes below
Device information	Displays device status and configuration details	-	-	Read only

Reset behavior: Reset to default → restores standard settings or if available to the active profile configuration, Factory reset → clears all stored data (e.g. measurement values and records) and restores the initial factory state.

Important: Both reset functions restore the Bluetooth configuration. If Bluetooth is disabled after a reset, it can no longer be re-enabled via the mobile app and must be reactivated directly on the device.

3.10 COMMUNICATION INTERFACES

The device supports wireless communication via Bluetooth and wired communication via USB-C.

These interfaces allow:

- Device configuration
- Data transfer

The LEO Ultimate can be used in conjunction with dedicated PressureSuite Desktop and PressureSuite Mobile applications for extended functionality.

The mobile application enables wireless communication via Bluetooth®, while the desktop application provides additional options for configuration, data management, and analysis.



4. SAFETY

4.1 SYMBOLS USED IN THIS MANUAL

This manual uses the following symbols to indicate safety-related information and important notes.

SYMBOL	WARNING	TYPE AND SOURCE OF THE HAZARD
	DANGER (highest risk)	A hazard to the physical safety and lives of staff. Failure to follow the instructions will result in fatal or serious injury.
	WARNING (medium risk)	A potentially dangerous situation that could result in serious or fatal injury if not avoided.
	CAUTION (low risk)	A potentially unsafe situation that may result in minor or moderate injury.
	NOTE	Tips and information for users.

According to IEC 82079-1 standard.

4.2 INTENDED USE

The LEO Ultimate is a high-precision digital gauge designed for the accurate measurement of absolute or relative pressure. The permissible pressure ranges, environmental limits, accuracy specifications, and operating conditions are defined in the corresponding data sheet.

The device may only be used with media that are compatible with the wetted materials listed in the data sheet. The selected process medium must be suitable and non-hazardous for all wetted components throughout the entire application. Abrasive or highly viscous media must not be used, as they may damage the sensor.

The use of reactive or highly diffusive media (e.g. hydrogen) as well as oxygen applications requires specially designed device versions. Standard versions of the LEO Ultimate are not intended for such applications.

Devices specifically configured for these applications may include special materials, cleaning procedures, or filling media (e.g. gold-coated diaphragms or dedicated transmission fluids).

The suitability of the device for the intended application must always be verified prior to use. In case of uncertainty, please contact your sales representative.

If the device is used with oil as a process medium, it must not be used afterwards with combustible gases or fuels. Oil residues in combination with such media can lead to dangerous reactions or explosions, posing severe risks to users and equipment.

The LEO Ultimate is not approved for use in hazardous (explosive) atmospheres, unless explicitly stated on the device label or in the product documentation. Dedicated certified versions are required for operation in such environments.

Proper use requires

- compliance with all technical specifications
- correct installation and mounting
- operation within the specified environmental limits
- and handling by appropriately trained personnel

The device must be protected from moisture, mechanical shock, extreme temperatures, static discharge, and strong magnetic fields. Keep connectors and ports clean to ensure safe operation.

Any claims resulting from improper or non-intended use are excluded.

	DANGER	If used for purposes other than those intended!
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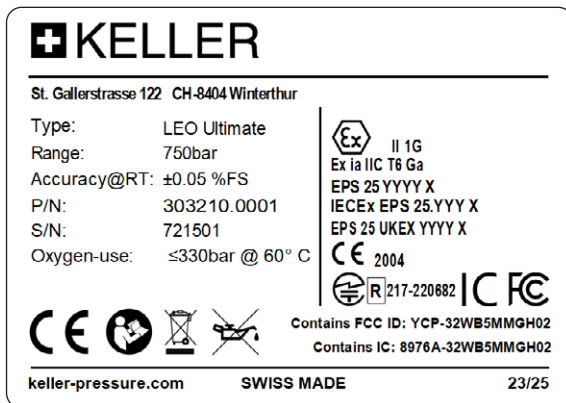
4.3 STAFF QUALIFICATIONS

Assembly, installation, commissioning, operation, maintenance, decommissioning, and disposal of the product must be performed only by qualified personnel with specialized expertise.

4.4 PRODUCT IDENTIFICATION

Each device can be uniquely identified using the label attached to the instrument housing. This product label contains all relevant information required to determine the device configuration and technical specification.

The label shown below is an example representing a fully equipped device with all available options. The actual label may vary depending on the specific device configuration and selected add-ons.



5. COMMISSIONING

SYMBOL	WARNING	TYPE AND SOURCE OF THE HAZARD
	DANGER	Risk of fatal injury due to incorrect installation and unintended system activation! Before connecting or disconnecting the measuring instrument, ensure that the entire system is secured against accidental activation and cannot be pressurized or energized during installation.
	DANGER	Risk of explosion or violent pressure release! Never install or remove the instrument while pressure is applied. Residual pressure must be fully released before any work is carried out.
	WARNING	Risk of equipment damage due to contamination or foreign particles! Before installation, ensure that the pressure port and sealing surfaces are clean and free of debris. Contamination may cause incorrect measurements or damage to the sensor.
	WARNING	Risk of leaks due to improper sealing! Use only suitable sealing materials (e.g., O-rings, thread seals) that are compatible with the process medium and pressure range. Incorrect sealing can lead to sudden media leakage.
	WARNING	Risk of incorrect readings or device malfunction! Ensure that the pressure connection is properly tightened with the correct torque. Over-tightening may damage the sensor; under-tightening may cause leaks.
	CAUTION	Battery safety risk! Insert the batteries in the correct orientation. Do not use damaged or leaking batteries. Replace batteries only with approved types.
	NOTE	Before commissioning, allow the instrument to acclimatize if it has been exposed to extreme temperatures during transport or storage. Temperature shock may affect measurement stability.



5.1 MOUNTING AND SAFETY INSTRUCTIONS

The LEO Ultimate must only be installed and commissioned in a safe and technically sound condition. Before installation, visually inspect the device to ensure that it is free from mechanical damage, contamination, or moisture ingress.

To prevent damage to the instrument or the system, observe the following points during mounting and installation:

General Requirements

- Operate the instrument only within the specified performance limits. These limits are indicated on the product label, in the data sheet, and in the technical specification. Continuous operation above the rated pressure range is not permitted and may lead to permanent damage.
- Freezing of the process medium is not permitted. Ice formation can cause irreversible damage to the sensor or housing.
- Ensure that all materials of the pressure port, sensor, and sealing elements are compatible with the process medium.
- Avoid the formation of electrochemical potential differences, particularly when combining dissimilar metals.
- The device must not be used as a safety device or for safety-critical control functions.
- To prevent mechanical damage, do not remove the protective cap or packaging until immediately before installation.
- All mounting, test, and calibration setups must be carried out in a fully depressurized system.

Additional Handling and Environmental Notes

- Protect the device from moisture, corrosive environments, and permanent direct sunlight.
- For outdoor applications, the use of a suitable protective cover is recommended.
- Tighten the pressure connection using a wrench applied to the designated flats only. Do not apply torque via the device housing.

5.2 MECHANICAL INSTALLATION

5.2.1 Requirements for the installation site

Before installation, ensure that:

- All sealing surfaces on the device and at the measuring point are clean and undamaged.
- The selected sealing element is undamaged, correctly positioned, and suitable for the process medium and application conditions.
- The selected installation location meets the permissible environmental conditions.
- Ambient and process medium temperatures remain within the specified performance limits.
- The pressure connection corresponds to the correct thread type and size.

5.2.2 Sealing the process connection

Correct sealing of the process connection is essential for safe operation. The selection of the appropriate sealing method depends on the specific application, including pressure range, connection type, and dynamic loading conditions. It is the responsibility of the user to ensure that the selected sealing method is suitable for the intended application. In case of uncertainty, consult the manufacturer.

Incorrect selection of sealing methods may lead to leakage or measurement deviations.



Cylindrical threads

- Seal the connection at the sealing face using flat gaskets, O-rings, or sealing lenses compatible with the process medium and pressure range.

Tapered threads (e.g. NPT and BSPT)

- Seal directly within the thread using approved sealing materials such as PTFE tape.
- Do not seal via the housing surface or thread shoulder.

5.2.3 Mounting the Instrument

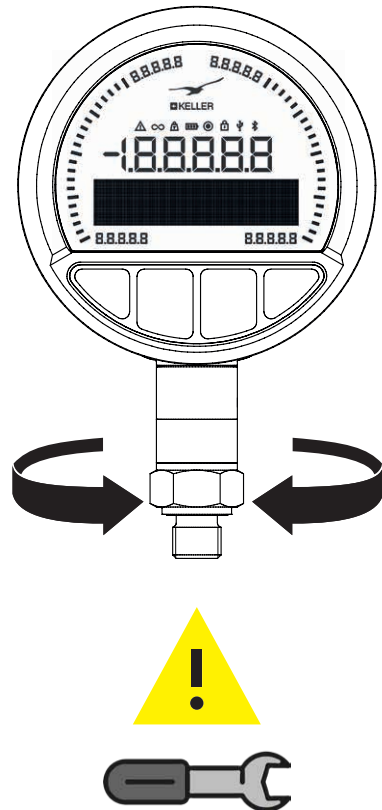
Perform the installation in the following order:

1. Ensure that the sealing surface is correctly sealed.
2. Screw the LEO Ultimate by hand into the pressure port.
→ Avoid cross-threading of the threads.
3. Tighten the device using a torque wrench applied only to the designated wrench flats.
→ Never apply force via the housing or display.

The required tightening torque depends on the thread size and sealing method. Do not exceed the permissible tightening torque. If the permissible tightening torque is unknown or unclear, consult the manufacturer to prevent damage to the device or the pressure connection.

5.2.4 Avoidance of mechanical stress

- Install the instrument so that no impermissible mechanical stress is introduced into the pressure connection or housing.
- External forces, bending moments, vibration, or misalignment must be avoided.
- Improper mechanical stress may adversely affect the zero point and the measurement characteristic.



5.3 BATTERY HANDLING

The LEO Ultimate is powered by internal batteries, which are included in the scope of delivery. The device is delivered with inserted batteries.

Battery Requirements

- Use only the specified battery type as listed in the datasheet.
- Do not use rechargeable batteries unless explicitly approved, as discharge characteristics may differ and affect device performance.
- If batteries other than those supplied are used, ensure that their specified operating conditions (e.g. temperature range and performance characteristics) are compatible with the device requirements.
- Due to differing discharge characteristics, the battery level indication may deviate from the actual remaining battery capacity.

	CAUTION	Risk of device damage due to improper battery handling. To prevent damage to the device or the test setup, observe the following: • Always replace all batteries at the same time. • Do not mix new and used batteries. • Do not mix batteries with rechargeable batteries. • Ensure correct polarity when inserting the batteries. • Do not use damaged or leaking batteries. • Ensure that the battery compartment cover is properly closed and secured. • Insert or replace batteries only with dry hands.
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Inserting or Replacing the Batteries

Proceed as follows:

1. Place the device on its front side on a clean, stable surface.
2. Remove all four battery compartment screws as shown in the device illustration.
3. Remove the battery compartment cover.



4. Insert the batteries according to the polarity markings inside the compartment.
 - Ensure that the «+» and «-» symbols on the batteries match the markings.
 - Make sure, that the sealing of the compartment still fits properly
5. Reinstall the battery compartment cover and secure it properly.
 - Do not exceed the maximum screw torque of 1 Nm.



6. TROUBLESHOOTING

This chapter provides guidance for identifying and resolving common issues during operation of the LEO Ultimate.

If a malfunction occurs, first check the following:

- Verify that the device is installed correctly and within the specified operating conditions.
- Check the battery status and replace batteries if necessary.
- Ensure that all connections and interfaces are clean and properly connected.
- Confirm that the selected settings and measurement mode are appropriate for the application.

Typical issues may include:

ISSUE	POSSIBLE CAUSE / DESCRIPTION	RECOMMENDED ACTION
No measurement value displayed	Device is not powered, battery is depleted or device is in sleep mode	Check battery status and replace batteries if necessary
Unstable or fluctuating readings	Unstable process conditions or dynamic pressure	Verify stable process conditions, temperature stability, proper installation, and filter settings
Unexpected measurement results	Incorrect pressure type, wrong unit selection, or active tare offset	Check pressure type, unit selection, and tare settings
Device does not respond to button inputs	Device is locked or temporarily not responsive due to current operating state	Ensure the device is not locked due to ongoing record for example and restart if necessary
Data logging does not start or stop as expected	Logger configuration not correctly set or delay/start condition active	Verify start and stop conditions and observe on-screen prompts

Note: Some functions or modes may be hidden depending on the device configuration. If the issue persists, restart the device. If the problem cannot be resolved, contact the manufacturer or an authorized service partner.

Do not open the device or attempt repairs. Unauthorized intervention may void the warranty.

7. SERVICE AND REPAIR

7.1 MAINTENANCE

KELLER Pressure products are maintenance-free when operated within the specified limits. No regular maintenance is required to ensure proper device operation.

Cleaning

The device can be cleaned if required, depending on the application and environmental conditions.

For the display window made of PMMA:

- Do not use alcohol-based cleaning agents, as they may damage the surface.
- Use lukewarm water with a mild detergent or a cleaner suitable for acrylic glass.
- Clean the surface using a soft microfiber cloth.

7.2 RECALIBRATION

Depending on the application and operating conditions, the measurement accuracy may change over time due to drift of the zero point or span.

For high-accuracy measurements (accuracy ≤ 0.1 %FS), periodic recalibration or adjustment is recommended.

The recalibration interval depends on the application requirements and must be defined by the user.



7.3 RETURN

Register your return using our online form (keller-pressure.com/en/rma) and describe the reason for return as precisely as possible. After reviewing your request, you will receive a confirmation including all required documents and detailed instructions for the shipping process.

Before returning the device, observe the following:

- Ensure that the device is clean and free of any hazardous substances.
- Ensure that the RMA form is completed accurately and includes a detailed description of the observed issue and the reason for return.
- Provide information about the process media used, if applicable.

Important Notice:

If the device has been exposed to hazardous substances (e.g. chemical or dangerous media), this must be clearly declared when initiating the return process.

Incorrect or incomplete information, or insufficient decontamination, may result in delays or suspension of processing until the situation has been clarified.

Always pack the device securely to prevent damage during transport.

8. DECOMMISSIONING, RETURN AND DISPOSAL

8.1 DECOMMISSIONING

Before removing the device from operation, ensure that the system is in a safe condition.

- Depressurize the system completely.
- Ensure that no hazardous media can escape.
- Switch off the device.

Carefully remove the device from the installation to avoid damage to the pressure connection or sealing surfaces.

8.2 RETURN

If the device is to be returned for service, calibration, repair, or disposal follow the instructions in Chapter 7.3 «Return».

Ensure that the device is clean, properly packed, and safe to handle before shipment.

8.3 DISPOSAL

Dispose of the device in accordance with applicable local regulations and environmental requirements. Electronic components and batteries must not be discarded with household waste. Remove the batteries before disposing of the device and recycle them separately in accordance with local regulations. Improper disposal may have adverse environmental effects.

9. TECHNICAL DATA

Detailed technical specifications of the LEO Ultimate are provided in the corresponding data sheet.

Ensure that the device is operated within the specified limits. Operation outside these limits may result in reduced performance or device damage.

The applicable data sheet is part of the product documentation.



10. APPROVALS AND COMPLIANCE

The LEO Ultimate complies with applicable international directives and standards for electrical safety, electromagnetic compatibility, and radio equipment. The applicable approvals and certifications are indicated on the device label and in the associated documentation.

10.1 EU DECLARATION OF CONFORMITY

Hereby, KELLER Pressure declares that the radio equipment type LEO Ultimate is in compliance with Directive 2014/53/EU.

The full EU Declaration of Conformity is available at: keller-pressure.com/leo-ultimate

10.2 RADIO EQUIPMENT DIRECTIVE (RED)

This device complies with the requirements of the Radio Equipment Directive (RED) 2014/53/EU.

The device uses Bluetooth® technology for wireless communication within the 2.4 GHz frequency band. Maximum transmitted power: < +6 dBm.

It fulfills the essential requirements regarding:

- Efficient use of the radio spectrum
- Electromagnetic compatibility (EMC)
- Electrical safety

The EU Declaration of Conformity provides the full list of applicable directives and harmonised standards.

The device may only be operated in accordance with applicable national regulations.

The user is responsible for ensuring that the device is operated in compliance with local regulations.

10.3 FCC COMPLIANCE (USA)

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Contains FCC ID: YCP-32WB5MMGH02



10.4 ISED COMPLIANCE (CANADA)

This device contains license-exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada's license-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.

Contains IC: 8976A-32WB5MMGH02

L'émetteur 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.

Contient IC : 8976A-32WB5MMGH02

10.5 RADIO COMPLIANCE (OTHER REGIONS)

The device complies with applicable radio regulations in additional regions, including but not limited to Japan, Australia, and New Zealand, depending on the device configuration.

Operation of the device is subject to national regulations of the respective country.

The user is responsible for ensuring that the device is used in accordance with local regulatory requirements.

Radio approvals may vary depending on the device version and target region.

11. WARRANTY CONDITIONS

The warranty period for the LEO Ultimate is 12 months from the date of delivery.

KELLER Pressure warrants that the products are free from defects in material and workmanship and conform to the agreed specifications as confirmed in writing.

The device is covered by warranty under normal intended use and when operated within the specified limits.

The warranty does not apply in the following cases:

- Improper or non-intended use
- Operation outside the specified limits
- Mechanical damage caused by external influences
- Unauthorized modifications or repairs
- Damage caused by incompatible media or contamination

Any warranty claims must be submitted to the manufacturer or an authorized service partner.

The warranty period and detailed conditions are defined by the applicable contractual agreements and general terms and conditions.



12. LEO ULTIMATE MENU NAVIGATION

MEASUREMENT MODES	Standard [default]	
	Peak	
	Leak	
	Rate	
	Alarm	
DATA LOGGER SETTINGS	Status	ON
		OFF [default]
	Start Condition	Manual [default]
		Delay 1 h
		Delay 3 h
		Delay 6 h
		Delay 12 h
		Delay 24 h
		Custom
	Stop Condition	Manual [default]
		After 1 h
		After 24 h
		After 7 d
		Custom
	Save Interval	1 s
		10 s [default]
		1 min
		1 h
		Meas. Rate
		Custom
	Record Channels	Pressure
		Abs. and Rel. [default]
		Pressure Type
		Temperature
		ON
		OFF [default]
	Memory	Mode
		Stop When Full [default]
		Overwrite
		Memory Overview
		(dynamic record list)
		Cleanup
		Delete All Records ⚡
		Delete Latest Records ⚡
MEASUREMENT SETTINGS	Measurement Rate	1 Hz
		2 Hz
		10 Hz [default]
		50 Hz
	Tare	Tare ⚡
		Undo Tare ⚡
	Min/Max	Reset Min/Max ⚡
	Leak Duration	Manual
		1 min
		10 min
		30 min [default]
		Custom
	Rate Interval	1 s
		10 s [default]
		1 min
		Custom
	Pressure Type	Absolute [default]
		Relative



DISPLAY SETTINGS	Units	Pressure	bar [default]		
			mbar		
			psi [default]		
			Pa		
			kPa		
			MPa		
			mH2O		
			mmH2O		
			inH2O		
			ftH2O		
			mmHg		
			inHg		
			kgf/cm2		
			Custom Unit		
		Temperature	°C [default]		
			°F [default]		
			K		
		Digits Pressure	4		
			5		
			5.5 [default]		
		Bargraphs	Left	Standard [default]	
				Extended	
			Right	Visibility	
				Show [default]	
				Hide	
				Scale Mode	
Auto Scale [default]					
Fixed					
Drag Indicator					
ON					
OFF [default]					
Refresh Rate	1 Hz				
	2 Hz [default]				
	5 Hz				
	10 Hz				
Backlight	Auto-Off	10 s [default]			
		30 s			
		60 s			
		120 s			
		OFF			
	Brightness	20%			
		40%			
		60% [default]			
		80%			
		100%			

DEVICE SETTINGS	Bluetooth	Status	ON [default]	
			OFF	
		Pairing	Eco: ShortRange	
			Standard: MidRange [default]	
	Power: LongRange			
	Auto-Off	Never		
		5 min		
		15 min [default]		
		60 min		
		Custom		
	Reset	Reset to Default ⚡		
		Factory Reset ⚡		
	Device Information	Name		
		Comment		
		Serial		
		Range		
		Production Date		
Firmware				
Runtime				

DOCUMENT VERSION	DATE	APPLICABLE FIRMWARE	CHANGES
09/2026	September 2026	26.35	Initial Release





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You can find details of other international
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www.keller-pressure.com/en/company/subsidiaries



*Subject to technical alterations.
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