CRYSOUND

CRY3010 Series

Sound Calibrator

User Manual

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01 User Instructions

1. Carefully read this safety information before using the product and keep it for future reference.
2. Use the product only for its intended purpose.
3. Do not disassemble the device or replace internal components without authorization.
4. Stop using the device immediately if it malfunctions or becomes abnormally hot.
5. All repairs must be carried out by the manufacturer.
6. Do not place the device near heat sources or open flames, and do not store it in high-temperature environments.
7. Do not use or charge the calibrator in flammable, explosive or otherwise hazardous environments.
8. The 94 dB / 114 dB sound pressure output of the calibrator is not suitable for prolonged exposure close to the human ear.

02 Accessories List

2.1 Product Accessories List

No.	Name	Quantity
1	CRY3018/CRY3016/CRY3012 Sound Calibrator (with built-in TA0307-1"-to-1/2" adapter)	1
2	TA0308-1/2"-to-1/4" adapter （CRY3018 and CRY3016 included）	1
3	TA0309-1/2"-to-1/8" adapter（CRY3018 included）	1
4	USB-C charging cable (1.2 m)	1
5	Protective leather sleeve（CRY3018 included）	1
6	Calibration chart	1

2.2 Certifications

No.	Name
1	CE-EMC
2	CE-RoHS 2.0
3	FCC SDoC

The above are the standard accessories supplied with the product. Please check the contents upon receipt. If anything is missing, contact your supplier in a timely manner. All adapters are dedicated accessories for the original calibrator.

03 Product Description

3.1 Product Purpose and Key Features

The CRY3010 series sound calibrator is a portable, high-precision sound source that complies with the IEC 60942:2017 Class 1/Class 2 international standard.Depending on the model, the calibrator provides dual-frequency calibration signals at 250 Hz and 1000 Hz, as well as dual sound pressure level outputs of 94 dB and 114 dB.Certain models are equipped with a built-in temperature, humidity, and barometric pressure compensation system that monitors environmental conditions in real time and automatically adjusts the output, ensuring stable and accurate sound pressure levels under fluctuations in temperature, humidity, and atmospheric pressure.The short-term sound pressure level drift of the CRY3010 series sound calibrator is less than 0.05 dB, long-term stability is better than 0.1 dB/year, and frequency stability is better than 0.5 Hz/year. The total harmonic distortion (THD+N) of the calibrator is less than 2%.

3.2 Appearance

04 Controls and Operation

4.1 Power On and Power Off

Automatic Power-On

This feature is available only on the CRY3018.Insert the microphone to be calibrated into the sound cavity interface of the calibrator. The device will automatically power

on and enter the operating state. The sensor-based power-on function detects the insertion of the microphone to enable the device, facilitating one-handed operation.

Manual Power-On

Short-press either button on the front panel to manually power on the device.

Automatic Power-Off

The calibrator features an automatic power-saving function. The device will power off automatically shortly after the microphone is removed from the sound cavity. When the battery level is low, the calibrator will shut down automatically after approximately 30 s. Please recharge promptly.

Manual Power-Off

（CRY3018）Press and hold the “Hz” or “dB” button for approximately 2 seconds to power off the device immediately.

（CRY3016、CRY3012）Press and hold the “⏻” button for approximately 2 seconds to power off the device immediately.

4.2 Microphone Adapters and Installation

By changing adapters, the CRY3010 series sound calibrator can support calibration of microphones with diameters of 1", 1/2", 1/4" and 1/8".

1" microphones: If a TA0307 is already installed on the sound cavity, remove the adapter as shown to expose the 1" interface, then insert the 1" microphone directly into the cavity for calibration (no adapter required).

1/2" microphones: Use the supplied TA0307 (pre-installed in the calibrator or provided in the package). Screw it into the sound cavity of the calibrator, then insert the 1/2" microphone into the adapter for calibration.

1/4" microphones: Insert the TA0308 into the TA0307, then insert the 1/4" microphone into the TA0308 for calibration.

1/8" microphones: Use the TA0309 in a similar way as for 1/4" microphones.
Select the correct adapter according to the microphone diameter and ensure that both the adapter and the microphone are fully seated and firmly inserted. Avoid tilting or twisting the microphone during insertion to prevent damage to the adapter or microphone. For microphones with special grids or preamplifiers, remove the grid or use special adapters provided by the manufacturer when necessary.

4.3 Microphone Calibration Procedure

1 - Preparation

Ensure that the calibrator battery is sufficiently charged. If the battery is low, charge the device before use.

2 - Select Adapter

Install the corresponding adapter according to the diameter of the microphone to be calibrated (see Section 4.2). Ensure the adapter is clean and free of dust and that the internal sealing ring is intact to prevent air leakage.

3 - Power-On

Insert the microphone slowly into the bottom of the sound cavity of the calibrator, keeping it vertical until it is fully seated.
Stabilization: After initial power-on or microphone insertion, the calibrator will adjust the output to its stable value within approximately 3 seconds. During this period, the status indicator is steady white. When the indicator turns steady green, the output sound pressure level has stabilized at the nominal value.

4 - Verify the Reading of the Device Under Test

After the calibrator output has stabilized, read the sensitivity of the device under calibration.

5 - Complete Calibration

After confirming that the reading of the device under test is correct under the calibrator, slowly remove the device and power off the calibrator.

6 - Notes

During calibration, avoid generating other noise or vibration near the sound cavity of the calibrator to prevent interference with the calibration signal. The calibrator outputs a pure sinusoidal sound pressure signal. The operator does not need and should not apply any additional corrections to the calibrator output during calibration.

4.4 Frequency Selection（CRY3018）

The default frequency at power-on is 1000 Hz. When the device is on, short-press the frequency selection button on the panel ("Hz") to toggle cyclically between 250 Hz and 1000 Hz. After the frequency is changed, the screen will display the new output frequency, and the calibrator will output the corresponding sound pressure level at that frequency.

Select the appropriate frequency according to the requirements of the equipment under calibration. Generally, 1000 Hz is used for calibration, while 250 Hz can be selected for precision measurements or special applications. Each time the frequency is switched, the calibrator stabilizes again within approximately 2 seconds.

4.5 Sound Pressure Level Selection（CRY3018、CRY3016）

The default sound pressure level at power-on is 94 dB. When the device is on, short-press the sound pressure level selection button ("dB") to toggle cyclically between 94 dB and 114 dB. After the sound pressure level is changed, the screen will display the new output level, and the calibrator will output the corresponding sound pressure level at the current frequency.

Select an appropriate sound pressure level according to the requirements of the equipment under calibration. A level of 114 dB can be used to improve the signal-to-noise ratio in environments with high ambient noise, but in normal environments it is recommended to use the standard 94 dB level. Each time the sound pressure level is switched, the calibrator stabilizes again within approximately 2 seconds.

4.6 Display

Main Display and Secondary Display

Information Display

The OLED display on the front of the calibrator continuously shows key status information including current sound pressure level (dB), frequency (Hz) and battery level.

Adaptive Display（CRY3018）

When the calibrator is rotated and its orientation changes, the built-in gyroscope automatically rotates the screen content to maintain an upright display.

Secondary Display

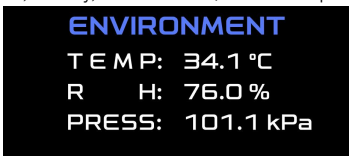
In addition, the calibrator provides an auxiliary information screen.

（CRY3018、CRY3016）Press and hold the left and right buttons simultaneously for approximately 2 seconds to switch to the secondary display interface.Short press the right button to cycle through the secondary display pages.Short press the left button to return to the main display.

（CRY3012） Press and hold the “ ” button for approximately 2 seconds to switch to the secondary display interface.Short press the “ ” button to cycle through the secondary display pages.Short press the left button to return to the main display.

The secondary screen displays more detailed device information.

Page 1: Temperature, Humidity, and Air Pressure (internal device parameters)



Page 2: Model Number, Serial Number, Software Version, Hardware Version

Status Indicator Light

A bi-color status indicator is located on the top of the calibrator to show the current operating status of the device. The meanings of the indicator lights are as follows:

1 - Steady white

Indicates that the calibrator has not yet stabilized. Please wait for stabilization before calibration.

2 - Steady green

Indicates that the calibrator output has stabilized and calibration can proceed.

3 - Steady white while powered off and charging

Indicates that the device is charging.

4 - Steady green while powered off and charging

Indicates that charging is complete.

05 Technical Features and System Description

5.1 Sound Pressure Feedback System

The CRY3010 series sound calibrator adopts a closed-loop sound pressure feedback control technique that continuously monitors the sound pressure in the calibration cavity and adjusts the drive of the loudspeaker in real time. This technology provides high stability and low sensitivity to acoustic load variations caused by different microphone sizes.

5.2 Temperature, Humidity and Atmospheric Pressure Compensation （CRY3018、CRY3016）

The CRY3018 and CRY3016 are equipped with multiple built-in sensors that enable compensation for temperature, humidity and atmospheric pressure. As long as the calibrator and the device under test are kept under the same environmental conditions during calibration (for example, stable temperature and avoidance of strong airflow), the calibrator can keep environmental errors at a very low level.

5.3 OLED Display

The OLED display remains clearly visible even under direct sunlight or strong outdoor lighting. The surface of the display is highly resistant to scratches and impacts and is coated with an anti-fingerprint (AF) layer to reduce fingerprint and oil residue.

5.4 Battery

The device contains a built-in rechargeable lithium battery with multiple safety protections including over-charge protection, over-discharge protection and short-circuit protection, ensuring safe and reliable operation under various conditions.

06 Maintenance and Notes

6.1 Operating Environment and Precautions

When used near the limit of environmental conditions (for example, high altitude or extreme temperature and humidity), the calibrator may require slightly longer stabilization time, and the uncertainty of calibration results may increase slightly. Before calibration, place the calibrator and the device under test in the current environment for 2 hours to allow internal sensors and mechanical structures to reach thermal equilibrium.

For outdoor use, prevent moisture or dust from entering the sound cavity of the calibrator and avoid using the device in rain or heavy dust storms. Keep the sound cavity clean. It is recommended to store the device in the protective sleeve (if supplied). Periodically check whether the sealing rings of the adapters are intact and clean or replace them as needed.

The CRY3010 series sound calibrator is designed for various field and laboratory environments but must not be used in flammable, explosive or otherwise hazardous environments. Always comply with local safety regulations regarding the use of electronic devices.

6.2 Battery Maintenance and Charging

Before first use, please charge the device for at least 2 hours to ensure the battery is fully charged. During normal use, please recharge the device promptly when the display indicates a low battery. Use the supplied USB-C cable and a power adapter or computer USB port that meets the 5 V/1 A output specification for charging.

If the device will not be used for an extended period, ensure the battery is at approximately 70% charge and recharge it every 3 months to avoid damage from excessive self-discharge. In low-temperature environments, the available battery capacity may temporarily decrease, which is normal. Do not attempt to replace the battery or disassemble the calibrator yourself. Battery maintenance must be performed by manufacturer-authorized service providers.

6.3 Storage and Transportation

For long-term storage, keep the calibrator in a dry and clean environment and avoid temperatures outside the range of −10 ℃ to +50 ℃. It is recommended to place the device in the supplied protective sleeve and store it together with its accessories in the original packaging. During transportation, avoid severe impact or dropping, and prevent foreign objects from entering the sound cavity of the calibrator.

6.4 Warranty and Calibration Interval

The device is covered by a 3-year warranty. It is recommended to have the calibrator verified or calibrated by a qualified metrology organization every 12 months to ensure continued compliance with Class 1/Class 2 accuracy requirements.

6.5 Safety and Environmental Notes

Do not attempt to open the device. Unauthorized maintenance may lead to reduced accuracy or safety hazards. If the device exhibits abnormalities such as failure to power on, unstable output or unresponsive buttons, contact the manufacturer's after-sales service or professional maintenance personnel.

This product meets applicable environmental protection regulations, and all electronic components conform to the restricted substance requirements of the RoHS 2.0 directive. Do not dispose of this device or its lithium battery as ordinary household waste at the end of its service life.

6.6 Frequently Asked Questions

1. Q: Why is there no response after pressing the power button?

A: The battery may be exhausted. Please connect the charger to charge the device.

2. Q: Why does the device sometimes not power on automatically when a microphone is inserted?

A: This is normal. The automatic power-on function relies on precise detection of the microphone. If the microphone does not fully trigger the detection switch, please power on the device manually.

3. Q: Is it normal that the device does not power on automatically when connected to USB-C and a microphone is inserted?

A： Yes. When the device is connected to USB-C, the automatic power-on function is disabled, so failure to power on automatically is normal in this case.

4. Q: Why does the device sometimes not power off automatically after removing the microphone when using certain adapters?

A: For 1/4" and 1/8" adapters made of metal, insertion may trigger automatic power-on, but removal of the microphone may not satisfy the conditions for automatic power-off. In such cases, you need to power off the device manually or remove the adapter.

5. Q: Why does the screen brightness automatically dim after prolonged use?

A: This is a part of the intelligent low-power design of the device.

6. Q: What might cause calibration failure or unstable readings?

A: In such cases, troubleshoot according to the following steps:

Environment: Ensure that there is no strong airflow, strong electromagnetic interference, abnormal ambient noise or structure-borne noise in the calibration environment.

Connections: Check whether the microphone is tightly coupled to the sound cavity of the calibrator and that there is no leakage. Also check whether the connection of the microphone preamplifier is secure.

Microphone status: Confirm that the microphone is functioning properly.

7. Q: The calibration sound emitted by the device sounds distorted or noisy. Is this normal?

A: This is not normal. Please contact the manufacturer's after-sales service.

Tips

If your issue is not covered in this list or if the problem persists after following the guidance, please contact our support staff. Our engineers will provide you with professional technical support.

The contents of this user manual are subject to change without prior notice. The Company reserves the right to interpret this manual.

07 Technical Specifications

Type	CRY3018	CRY3016	CRY3012
Standard	Class 1	Class 1	Class 2
Color	Black	Blue	Gray
Frequency	250 Hz/1000 Hz	1000 Hz	1000 Hz
Sound Pressure Level	94 dB/114 dB	94 dB/114 dB	94 dB
Display	Color	Monochrome	Monochrome
Adaptive Display	Supported	Not Supported	Not Supported
Sound Pressure Compensation	Supported	Supported	Supported
Temperature, Humidity, and Barometric Pressure Compensation	Supported	Supported	Not Supported
Automatic Power-On	Supported	Not Supported	Not Supported
Automatic Power-Off	Supported	Supported	Supported
Operating Temperature Range	-10 ℃ to +50 ℃		
Operating Pressure Range	65 kPa to 108 kPa		
Operating Humidity Range	0%RH to 90% RH, non-condensing		
Storage Conditions	-10 ℃ to +50 ℃		
Power Supply	USB-C (5 V,1 A)		
Battery	Built-in lithium battery, approx. 16 h continuous operation		
Dimensions	75 mm × 75 mm × 30 mm (L × W × H)		
Weight	Approx.150 g		

08 Contact Us

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