

## B&K 2245 Sound Level Meter with Noise Partner

The core of the B&K 2245 series

*B&K 2245 Sound Level Meter with Noise Partner is a complete solution for basic noise measurements.*

*Whether you are a complete novice, occasional user or an acoustics specialist – sometimes all you need is a simple sound level meter – one that provides you with reliable, accurate results without all the fuss. That is what B&K 2245 delivers.*

*This robust, class 1 sound level meter puts functionality, ease-of-use and versatility into the palm of your hand together with the reliability and confidence that is ensured with the Brüel & Kjær brand.*



### Uses and Features

#### Uses

- Basic noise measurements
- Broadband measurements requiring IEC 61672 compliant instrumentation
- Simple product testing

#### Features

- Single measurement range: 16 – 141 dB(A) from noise floor to maximum level
- Frequency range: 6 Hz – 20 kHz
- 16 GB internal storage
- Automatic measurement transfer for network storage for backup and analysis
- Robust design for both indoor and outdoor measurements
- Wireless connectivity for remote control of measurements and data transfers
- Simplified user interface using either the sound level meter or your iPhone®
- Measurement annotation using photos, audio, text or video
- PC software for data storage, viewing and reporting
- GPS for time and position
- Calibrator auto-detection
- Windscreen auto-detection and compensation

## A Complete Solution

B&K 2245 Sound Level Meter is a complete package solution that includes the Noise Partner app for both mobile measurement control, display and data transfer and a PC-based application for analysis and documentation.

**Fig. 1** The complete solution: B&K 2245 Sound Level Meter and the Noise Partner app installed on a mobile phone and PC



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## The Sound Level Meter

B&K 2245 provides effortless usability with a rubberized body that is dust- and water-resistant for a more secure grip and ensured compliance to IP 55. The seven control buttons can be comfortably operated with one hand, and the instrument's clear, bright display shows you the most important information at a single glance. With a 14-hour battery life, you can be sure it will not let you down.

**Fig. 2** The sound level meter's lightweight design and user-friendly display



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## Wireless Connectivity

Using the Noise Partner app on your mobile phone, you can wirelessly connect to B&K 2245, providing the flexibility to control your measurements via your mobile phone, avoiding possible body reflections or unsafe environments. Once the app has connected to the sound level meter, it will remember the instrument and automatically connect to it when in range.

B&K 2245 has Bluetooth®, Wi-Fi® and a USB-C connector.

## The App

Noise Partner app is an intuitive mobile app that extends the measurement environment to your mobile phone. Monitor and control the measurement from the phone and easily add photos, text, voice or videos to document the setup and/or particular events and situations.

**Fig. 3** Control, view and annotate measurements directly from your mobile phone



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## Transfer Data for Analysis

When you are done measuring, you can quickly and securely transfer data to your PC. All data is stored in the instrument, which can be set up to automatically transfer data whenever it connects to your local network.

The Noise Partner PC software, which is simple to install and use with preconfigured, user-friendly tools for presenting and sharing results, organizes the data intuitively, ready for further analysis and reporting.

### Smart Docking Station

B&K 2245 connects to an optional smart docking station that not only acts as a high-speed charger but also automatically transfers stored data and annotations to your network for reporting and analysis. This means the unit is always charged and ready to go, and you never have to worry about saving the information you need or about someone deleting your data by accident – everything is done securely for you.

**Fig. 4** B&K 2245 with its optional docking station



### Other Accessories

From tripods, calibrators, mobile phone holders, and more – Brüel & Kjær provides you with the accessories you need to complete any measurement task using B&K 2245.

See “Ordering Information” for a complete overview.

## Hassle-free Licencing

Each B&K 2245 licence is installed in the instrument, enabling measurement functions on the instrument as well as:

- Allowing connections to licenced mobile apps
- Embedding licences in measurement files for editing in licenced desktop apps

This means there are no licence files to install on the PC, and no dongles. Mobile and desktop apps can be freely downloaded and installed on any iPhone and PC, and measurements made with embedded licences can be edited by the desktop app on any PC, forever.

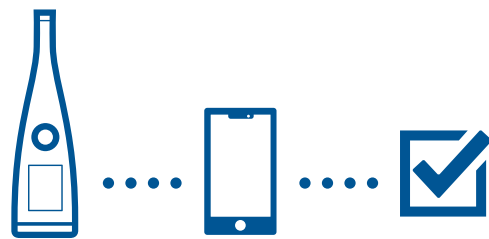
## A Platform that Helps You Get the Job Done

The B&K 2245 platform includes a range of apps, each tailored to assist a specific job-to-do. Each instrument can be licenced for more than one app, so switching tasks is as easy as – switching apps.


All available mobile apps can be downloaded from the App Store®. PC apps can be downloaded at [www.bksv.com](http://www.bksv.com).

- **Enviro Noise Partner** – for environmental noise surveys that includes markers to isolate sounds (for example, removing a barking dog or identifying the moment when a sound source is operating) and checklists to ensure each step is completed to local requirements
- **Work Noise Partner** – for workplace noise surveys that guides you through a full work day noise exposure calculation. Frequency analysis is also included, which is perfect for selecting hearing protectors

Job done.



## Compliance with Standards

	<p>The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives</p> <p>RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME</p> <p>China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China</p> <p>WEEE mark indicates compliance with the EU WEEE Directive</p>
<b>Safety</b>	EN/IEC 61010-1, ANSI/UL 61010-1 and CSA C22.2 No.1010.1: Safety requirements for electrical equipment for measurement, control and laboratory use
<b>Radio Transmission</b>	ETSI EN 300 328 V2.1.1: Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
<b>EMC Emission</b>	<p>EN 301 489-1 V2.2.0 Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU</p> <p>EN 301 489-17 V3.2.0 Electro magnetic compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for broadband data transmission systems; harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU</p> <p>EN/IEC 61000-6-3: Generic emission standard for residential, commercial and light industrial environments</p> <p>EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements</p> <p>CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits</p> <p>IEC 61672-1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards</p> <p><b>NOTE:</b> The above is only guaranteed using accessories listed in this document</p>
<b>EMC Immunity</b>	<p>EN 301 489-1 V2.2.0 Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU</p> <p>EN 301 489-17 V3.2.0 Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for broadband data transmission systems; harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU</p> <p>EN/IEC 61000-6-2: Generic standard – Immunity for industrial environments</p> <p>EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements</p> <p>IEC 61672-1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards</p> <p><b>NOTE:</b> The above is only guaranteed using accessories listed in this document</p>
<b>Temperature</b>	<p>IEC 60068-2-1 &amp; IEC 60068-2-2: Environmental Testing.</p> <p>Cold and Dry Heat</p> <p>Operating Temperature: –10 to +50 °C (14 to 122 °F)</p> <p>Storage Temperature: –25 to +70 °C (–13 to 158 °F)</p>
<b>Humidity</b>	IEC 60068-2-78: Damp Heat: 93% RH (non-condensing at +40 °C (104 °F)). Recovery time 2 ~ 4 hours
<b>Mechanical</b>	<p>Non-operating:</p> <p>IEC 60068-2-6: Vibration: 0.3 mm, 20 m/s<sup>2</sup>, 10 – 500 Hz</p> <p>IEC 60068-2-27: Bump: 4000 bumps at 400 m/s<sup>2</sup></p> <p>IEC 60068-2-27: Shock: 1000 m/s<sup>2</sup>, 5 directions</p>
<b>Enclosure</b>	IEC 60529 (1989): Protection provided by enclosures: IP 55

## Specifications – B&K 2245 Sound Level Meter

### Microphone

<b>SUPPLIED MICROPHONE</b>	Type 4966: Free-field ½" Microphone
<b>NOMINAL OPEN-CIRCUIT SENSITIVITY</b>	50 mV/Pa (corresponding to –26 dB re 1 V/Pa) ±1.5 dB

### Hardware Interface

<b>CONTROL BUTTONS</b>	7 buttons optimized for measurement control and screen navigation
<b>ON-OFF BUTTON</b>	Press centre button 1 s to turn on; press 2 s to switch off
<b>STATUS INDICATORS</b>	LED light ring visible from a distance, and from most angles: Red, yellow, green, blue, purple
<b>DISPLAY</b>	Transflective back-lit colour touchscreen 240 × 320 dot matrix

DISPLAY BACKLIGHT	Adjustable level and time
USB INTERFACE	Multi-purpose USB-C Connector: Battery charge, data transfer, output signal (frequency-weighted input signal or DC voltage corresponding to measured $L_{AF}$ , $L_{BF}$ , $L_{CF}$ or $L_{ZF}$ level)
CLOCK	System time updated from GPS when possible. Drift <0.26 s per 24-hour period ( $\pm 3$ ppm)

### Storage

INTERNAL FLASH-RAM (NON-VOLATILE)	16 GB for measurement data and annotations
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### Power

EXTERNAL DC POWER SUPPLY REQUIREMENTS	Used to charge built-in battery pack in the instrument
USB CHARGER PART NO.	ZG-0484
USB CHARGER CABLE CONNECTOR	USB-C
USB CHARGER VOLTAGE	5 V DC
USB CHARGER CURRENT	Min. 1.5 A
USB CHARGER VOLTAGE	100 – 120/200 – 240 V AC; 47 – 63 Hz
BATTERY VOLTAGE	3.6 V
BATTERY CAPACITY	6700 mAh nominal, 24 Wh
BATTERY TYPICAL OPERATING TIME	Typically >14 h with Wi-Fi enabled
BATTERY CYCLE LIFE	Min. 80% battery capacity available after 500 complete charge/discharge cycles
BATTERY INDICATOR	Remaining battery capacity and expected working time may be read out in % or hours
BATTERY FUEL GAUGE	The instrument is equipped with a built-in fuel gauge, which continuously measures and stores the actual battery capacity in the battery unit
CHARGE TIME	Typically <6 hours from empty at normal room temperature. <b>NOTE:</b> It is not recommended to charge the battery at temperatures below 0 °C (32 °F) or over 50 °C (122 °F). Doing this will reduce battery lifetime

### Environmental

START-UP TIME	From Power Off: <30 s
WEIGHT	370 g (13 oz)
DIMENSIONS	260 × 68 × 37 mm (10.2 × 2.7 × 1.5") including preamplifier and microphone

### Wireless Connection to Mobile Phone

OPERATING FREQUENCY	2.4 GHz	
DATA RATE	IEEE 802.11n	Up to 300 Mbps
	IEEE 802.11g	Up to 54 Mbps
	IEEE 802.11b	Up to 11 Mbps
ENCRYPTION/AUTHENTICATION	64/128-bit WEP, WPA-PSK, WPA2-PSK, TLS, SSL	
RANGE	The range is similar to a standard WLAN unit, typically from 10 to 50 m (33 to 164 ft), depending on the environment and the number of other WLAN transmitters in the area (smartphones, Wi-Fi, etc.)	
BLUETOOTH® CONNECTION	Bluetooth Low Energy (BLE) to discover and connect devices, allowing for simpler connections on Wi-Fi, etc. Not used for transporting measurement data	

### Wired Connection to PC and Docking Station

CONNECTIONS	USB-C, Ethernet over USB
DATA RATE	150 Mbps
ENCRYPTION/AUTHENTICATION	TLS, SSL

## Software Interface

<b>PREFERENCES</b>	Date, time and number formats can be specified
<b>LANGUAGE</b>	User interface in Catalan, English, French, German, Italian and Spanish
<b>HELP</b>	On app: Concise context-sensitive help in English, French, German, Italian and Spanish
<b>UPDATE OF SOFTWARE</b>	Update to latest version via Internet*
<b>REMOTE ACCESS</b>	Connect to the instrument via mobile phone downloaded with: <ul style="list-style-type: none"> <li>Noise Partner BZ-7300</li> <li>Other optional apps also available – see Ordering Information</li> </ul> Remote display (non-interactive) via internal web server

\* For Welmec type-approved instruments, updates must be performed at a Brüel & Kjær service centre.

## Input

<b>CORRECTION FILTERS</b> The software is able to correct the frequency response to compensate for sound field and accessories	<b>Sound Field:</b>	Free-field or diffuse-field for Type 4966
	<b>Accessories:</b>	Windscreen UA-1650
<b>SELF-GENERATED NOISE LEVEL</b> Typical values at 23 °C for nominal microphone open-circuit sensitivity	<b>A-weighting:</b>	<b>Microphone:</b> 14.9 dB <b>Electrical:</b> 9.8 dB <b>Total:</b> 16.1 dB
	<b>B-weighting:</b>	<b>Microphone:</b> 13.7 dB <b>Electrical:</b> 9.5 dB <b>Total:</b> 15.1 dB
	<b>C-weighting:</b>	<b>Microphone:</b> 13.8 dB <b>Electrical:</b> 12.2 dB <b>Total:</b> 16.1 dB
	<b>Z-weighting:</b>	<b>Microphone:</b> 15.5 dB <b>Electrical:</b> 18.8 dB <b>Total:</b> 20.5 dB

## Calibration

Initial calibration is stored for comparison with later calibrations.

<b>ACOUSTIC</b>	Using Sound Calibrator Type 4231 or custom calibrator. The calibration process automatically detects the calibration level when Sound Calibrator Type 4231 is used
<b>CALIBRATION HISTORY</b>	Calibrations and calibration checks are listed and can be viewed on the instrument

## Data Management

<b>MEASUREMENT DATA</b>	Measurements are automatically stored on measurement stop. Data is stored in folders by date, with individual measurements numbered sequentially
<b>ANNOTATION DATA</b>	Annotations (photos, videos, text and voice notes) made using the Noise Partner mobile app are embedded into measurement data and stored on the instrument
<b>DATA RETENTION</b>	The instrument can be configured to automatically move previously downloaded data to trash after a user-defined retention period
<b>BACKUP</b>	Measurement and annotation data can be automatically backed up to a USB stick or SMB network share

## Measurement Control

<b>FREE</b>	Manually controlled single measurement
<b>PRESET</b>	Preset measurement time from 1 second to 31 days in 1 s steps
<b>MANUAL CONTROLS</b>	Start, Pause, Continue and Stop the measurement manually
<b>BACK-ERASE</b>	The last 1 to 10 s of data can be erased without resetting the measurement

## Measurement Status

<b>ON SCREEN</b>	Information such as overload and running/paused are displayed on screen as icons	
<b>MEASUREMENT STATUS LIGHT RING</b> RGB light ring shows the measurement status and instantaneous overload as follows	<b>Green on constantly:</b>	Measuring
	<b>Yellow flashing every 5 s:</b>	Stopped, ready to measure
	<b>Yellow flashing slowly:</b>	Paused, measurement not stored
	<b>Red flashing quickly:</b>	Intermittent overload, calibration failed
	<b>Purple on constantly:</b>	Latched overload

## Software Specifications – Noise Partner BZ-7300

### System Requirements for Apps

<b>PC OPERATING SYSTEM</b>	Windows® 7, 8.1 or 10 (64-bit)
<b>PC FRAMEWORK*</b>	Microsoft® .NET 4.7.2
<b>MOBILE PHONE</b>	iPhone®
<b>iOS</b>	See supported iOS versions for current app version in the App Store, under <b>Noise Partner &gt; Information &gt; Compatibility</b>

\* The software will check if pre-installed. If it is not, it will start auto-installation. Accept the installation to run the app.

### Recommended PC for PC App

Intel® Core™ i5 or better	8 GB of memory
Sound card	At least one available USB port
Solid State Drive	Microsoft Office 2016 or later

### Standards

Conforms with the following national and international standards

<b>IEC – INTERNATIONAL ELECTROTECHNICAL COMMISSION*</b> (Commission électrotechnique internationale)	IEC 61672-1 (2013) class 1
	IEC 60651 (1979) plus Amendment 1 (1993-02) and Amendment 2 (2000-10), type 1
	IEC 60804 (2000-10), type 1
<b>DIN – DEUTSCHES INSTITUT FÜR NORMUNG E.V.</b> (the German Institute for Standardization)	DIN 45657 (1997-07)
<b>ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE</b>	ANSI S1.4-1983 plus ANSI S1.4A-1985 Amendment, type 1
	ANSI/ASA S1.4-2014, class 1
	ANSI S1.43-1997, type 1

\* The international IEC standards are adopted as European standards by CENELEC. When this happens, the letters IEC are replaced with EN and the number is retained. The instrument also conforms to these EN standards

### Analysis

<b>DETECTORS</b> Parallel detectors on every measurement	<b>A, B, C or Z</b>	Two simultaneous broadband frequency weightings. F, S and I exponential time weightings, linear averaging and peak detector simultaneously for each frequency weighting			
	<b>Overload Detector</b>	Monitors the overload outputs of all the frequency weighted channels			
<b>MEASUREMENT PARAMETERS</b> X = frequency weightings A, B, C or Z Y = time weightings F or S	<b>Sound Input for Display and Storage</b>	Start Time	Elapsed Time	L <sub>Xeq</sub>	L <sub>Xpeak</sub>
		L <sub>Alaq</sub>	L <sub>Almax</sub>	L <sub>XYmax</sub>	L <sub>XYmin</sub>
	<b>Sound Input Only for Display as Numbers or Quasi-analog Bars</b>	L <sub>XY</sub>	L <sub>XY(SPL)</sub>		



<b>MEASURING RANGES</b>	<b>Dynamic Range:</b>	(From typical noise floor to max. level for a 1 kHz pure tone signal): A-weighted: 16.1 to 140.9 dB
	<b>Primary Indicator Range</b>	(in accordance with IEC 60651): A-weighted: 21.4 dB to 123.6 dB
	<b>Linearity Range</b>	(in accordance with IEC 60804): A-weighted: 19.3 dB to 142.1 dB
	<b>Linear Operating Range</b>	(in accordance with IEC 61672): <ul style="list-style-type: none"> <li>• A-weighted: 1 kHz: 22.7 dB to 140.9 dB</li> <li>• C-weighted: 24.9 dB to 140.9 dB</li> <li>• Z-weighted: 31.6 dB to 140.9 dB</li> </ul>
	<b>Peak C Range</b>	(in accordance with IEC 61672): 1 kHz: 41.7 dB to 143.9 dB

### Displays on Instrument

<b>SLM VIEW</b>	One quasi-analogue instantaneous bar and one broadband value
<b>LIST VIEW</b>	One quasi-analogue instantaneous bar and three broadband values
<b>ABOUT DATA VIEW</b>	Latitude, longitude, microphone sensitivity, calibrated date, time zone, software version and hardware version for current measurement

### Displays on Mobile App

<b>XL TOTAL VIEW</b>	One quasi-analogue instantaneous bar and one broadband value
<b>TOTAL LIST VIEW</b>	One quasi-analogue instantaneous bar and five broadband values

### Ordering Information

#### Type 2245-N-S B&K 2245 Sound Level Meter with Noise Partner Software

which includes the following in a hard shell transport case (KE-1034):

- B&K 2245 Sound Level Meter
- BZ-7300-N: Noise Partner
- Type 4966: ½" Free-field Microphone
- ZG-0484: Mains Power Supply
- AO-0821-D-010: USB 3, USB C to USB A Cable (1.0 m/3.3 ft)
- UA-1650: 90 mm dia. Windscreen with AutoDetect
- DH-0819: Wrist Strap, for sound level meter
- UA-2237: Mobile Phone Holder Kit, for use on tripod

#### Type 2245-N-SC B&K 2245 Sound Level Meter with Noise Partner Software and Sound Calibrator Type 4231

which includes the following in a hard shell case (KE-1034):

- B&K 2245 Sound Level Meter
- BZ-7300-N: Noise Partner
- Type 4966: ½" Free-field Microphone
- Type 4231: Sound Calibrator
- ZG-0484: Mains Power Supply
- AO-0821-D-010: USB 3, USB C to USB A Cable (1.0 m/3.3 ft)
- UA-1650: 90 mm dia. Windscreen with AutoDetect
- DH-0819: Wrist Strap, for sound level meter
- UA-2237: Mobile Phone Holder Kit, for use on tripod

### Software and Accessories Available Separately

#### SOFTWARE MODULES

- BZ-7301 Enviro Noise Partner
- BZ-7302 Work Noise Partner

All mobile apps are available for download via the App Store®.  
All PC apps can be downloaded at [www.bksv.com](http://www.bksv.com).

#### INTERFACING

- UL-1073 4.7" App Control Unit, 32 GB
- UL-0089 Desktop Base Station, including power supply and LAN cable
- AO-0846 USB-C Output Cable, with power

#### CALIBRATION

- Type 4231 Sound Calibrator (fits in transport case)

#### MOUNTING

- UA-0750 Tripod
- UA-0801 Lightweight Tripod
- UA-1651 Tripod Extension

### Service Products

#### MAINTENANCE

- 2245-EW1 Extended Warranty, one year extension

#### ACCREDITED CALIBRATION

- SLM-SIM-CAF SLM Simple, Accredited Calibration incl. microphone
- SLM-SIM-CAI SLM Simple, Initial Accredited Calibration incl. microphone

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Brüel & Kjær Sound & Vibration Measurement A/S  
DK-2850 Nærum · Denmark · Telephone: +45 77 41 20 00 · Fax: +45 45 80 14 05  
[www.bksv.com](http://www.bksv.com) · [info@bksv.com](mailto:info@bksv.com)  
Local representatives and service organizations worldwide

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