Personal Noise Dose Meter Type 4448

Type 4448 is a shoulder-mounted, cable-free personal noise dose meter. This unit accompanies workers throughout their workday, measuring and registering all relevant data about their noise exposure, even in hazardous environments with the intrinsically safe model.

Two-button operation, the informative LCD display and the auto-calibration function make it easy to master the noise dose meter in just a few minutes. The built-in rechargeable battery and memory provide capacity for several workdays’ worth of measurement.

Type 4448 includes $L_{ceq}$ measurement for hearing protection selection using the noise reduction rating (NRR), single number rating (SNR) or high, middle, low (HML) rating method.

Kits containing up to ten dose meters are available. Each kit comes with a carrying case that has enough room for all the included and optional accessories for noise dose assessment with Type 4448.

Wireless communication using an infrared interface with your PC enables you to download data and configure the dose meter using Work Noise Partner PC software. In addition to archiving, reviewing and reporting measurement data, this software allows calculation of workday noise doses according to a variety of national and international standards. Measurement data from Type 4448 and B&K 2245 Sound Level Meter can be combined in a single Work Noise Partner project.

Uses and Features

**Uses**
- Occupational noise assessment and management
- Selecting hearing protection based on measurements

**Features**
- Lightweight and cable-free
- Easy to mount according to standards
- Multiple mounting options
- Robust, compact design suited for use in various environments
- Simultaneous measurement of all data relevant to standards (ISO and OSHA)
- Simultaneous measurement of A- and C-weighted levels
- Logging profile with 1 minute interval
- Peak counting (135, 137 and 140 dB level exceedance)
- Preset measurement time capability
- Auto-calibration
- Rechargeable battery, 90-minute maximum recharge time
- Up to 28 hours of operating time
- Linkable charging stations, charge up to 12 units at a time
- 180-hour memory capacity
- Simple two-button operation
- Button and display lock
- Highly visible LED level exceedance alarms
- LCD screen displays status and measurement data
- Six languages: English, French, German, Italian, Portuguese and Spanish
- Wireless connection for downloading data (infrared)
- Intrinsically safe model available
Noise-induced hearing loss is one of the most prevailing occupational health problems. Repeated exposure to high noise levels puts millions of workers at risk. Once the damage is done, social and psychological handicaps can lead to potentially massive expenses due to the loss of skilled labour, early retirement and worker compensation.

Compared to those expenses, prevention is cheap. It is important to assess and monitor noisy work environments before the damage is done and, if necessary, reduce noise exposure to a safe level by reducing machine noise, improving room acoustics, adjusting work days and/or providing appropriate hearing protection.

The benefit of using noise dose meters for measurements is that they move with the worker within the actual work environment, thereby monitoring noise exposure related to the individual’s work pattern and behaviour.

**Powerful and Flexible**

Powered by a digital signal processor (DSP), Type 4448 can measure all relevant noise parameters simultaneously, making setup unnecessary. DSP technology also allows the easy addition of new features through software updates, ensuring the longevity of your investment.

**Quick and Easy to Operate**

Two-button operation, auto-calibration, LCD display and a user interface with six languages (English, French, German, Italian, Spanish or Portuguese) ensure that you can fully master Type 4448 in just a few minutes.

**Real-time Estimation**

While in stand-by mode, Type 4448 provides a real-time display of $L_{AF}$ (ISO display mode) or $L_{AS}$ (OSHA display mode). This feature provides a quick and easy estimate of the sound pressure level in a particular area.

**Avoid Accidental Tampering**

The buttons and display can be locked to avoid accidental adjustments to the units. The unit will still display elapsed measurement time and the remaining battery capacity, which will provide confidence that all is as it should be.
Select Hearing Protection from Measurements

Noise dose meter Type 4448 simultaneously measures $L_{Aeq}$ and $L_{Ceq}$, so by using NRR, SNR or the HML rating method, appropriate hearing protection can be selected based directly on the measured data.

Ready to Measure when You Are

Type 4448 provides up to 28 hours of operation between charges, has enough memory to log all data for 180 hours at 1 minute intervals and starts up in just a few seconds. Type 4448 can be ready when you are and log data for several shifts without having to recharge or download data.

Smart Charging

Type 4448 is charged with intelligent drop-in chargers. They control each Type 4448 individually; so you can drop-in and remove individual units as required and regardless of the units’ current charge status. As soon as a unit is fully charged, the charger will switch to trickle charge mode for that device, maintaining the charge while avoiding damage to the battery from overcharging. You can also link up to four chargers, charging up to 12 noise dose meters simultaneously – with only one power supply.

Intrinsically Safe Models

Type 4448 is available as an intrinsically safe model, meeting the requirements of ATEX Ex ia I M1, Ex ia IIC T2 II 1 G, certificate number 07ATEX2032X. North American and Canadian FM/CSA approvals are to Class 1, Division 1, Groups A, B, C, D, temperature classification T2.

This means that the noise dose meters are suitable for usage in hazardous areas such as mines, printing works, petrochemical plants and other areas that require intrinsically safe monitoring instruments.
Measurement Is Just the Beginning

A Work Noise Partner project makes it easy to model the noise exposure for any number of workers using task, job or whole-day measurement strategies. The software provides all the tools to archive, review and report measurements made with Type 4448 and the B&K 2245 Sound Level Meter. In addition, it allows easy calculations of workday noise dose according to a range of national and international standards.

And All in a One Case

Multiple-unit kits make it easy to assess noise exposures for many workers. A kit case has space for up to 10 dose meters, 2 chargers, 1 power supply, 1 calibrator and other accessories that might be needed – lightweight and convenient. Starter kits are available with 1, 3, 5 or 10 units. They include the case, one power supply, a 3-way charger (kits with 10 units contain 2), one infrared-to-USB cable, a screwdriver and the field guide.

Kits can be completed with single units or using the expansion kits (containing 3 or 5 units).

All components are also available as individual accessories.
## Compliance with Standards

<table>
<thead>
<tr>
<th>Compliance</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE marking</td>
<td>The CE marking is the manufacturer’s declaration that the product meets the requirements of the applicable EU directives.</td>
</tr>
<tr>
<td>RCM mark</td>
<td>RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME.</td>
</tr>
<tr>
<td>China RoHS</td>
<td>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.</td>
</tr>
<tr>
<td>WEEE mark</td>
<td>WEEE mark indicates compliance with the EU WEEE Directive.</td>
</tr>
<tr>
<td><strong>EMC Emission</strong></td>
<td>IEC 61000–4–3/6–3: Test techniques and requirements for Radiated Electromagnetic compatibility (EMC) field tests.</td>
</tr>
<tr>
<td><strong>EMC Immunity</strong></td>
<td>IEC 61000–4–6/6–2: Test techniques and requirements for Immunity to Electromagnetic compatibility (EMC) – disturbances induced by radio frequency fields. Tested at 10 V/m or greater. IEC 61000–4–2: Test techniques and requirements for Electrostatic discharge immunity tests.</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ambient Operating Temperature: 0 to +40 °C (32 to 104 °F).</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>IEC 61252: 2002: section 12.4 (Operating): The indicated sound exposure remains within –11 to +12% over 30 to 90% RH relative to a reference point of 65% RH at 40 °C.</td>
</tr>
<tr>
<td><strong>Atmospheric Pressure</strong></td>
<td>EN 61252: section 12.2: The indicated sound exposure remains within –11 to +12% relative to reference conditions for an ambient pressure of 1013 ± 10%</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td>Non-operating: IEC 60068–2–6: Vibration: 0.3 mm, 20 m/s², 10–500 Hz IEC 60068–2–27: Shock: 1000 m/s² IEC 60068–2–29: Bump: 1000 bumps at 250 m/s².</td>
</tr>
</tbody>
</table>
STANDARDS
All types conform to:
• IEC 61252:2002
• ANSI S1.25:1991
Intrinsically safe model also conforms to:
• ATEX Ex ia I M1, Ex ia IIC T2 II 1 G, certificate number 07ATEX2032X
• FM/CSA approvals are to Class 1, Division 1, Groups A, B, C, D, temperature classification T2

SUPPLIED MICROPHONE
1/2” condenser microphone mounted on instrument body

FREQUENCY WEIGHTINGS
Leq and RMS Detector: A (and simultaneously C)
Peak Detector: A, C and Z (Linear)

TIME WEIGHTINGS
Slow, Fast and Impulse

MEASUREMENT PARAMETERS
Equivalent Continuous Sound Level: Leq
Time Weighted Average: L(eq)
Impulse Weighted Average: Leq
Leq and RMS Detector: A

FREQUENCY WEIGHTINGS
1/3 octave bands

TIME WEIGHTINGS
Slow, Fast and Impulse

MEASUREMENT PARAMETERS
Equivalent Continuous Sound Level: Leq
Average Sound Level: LAV
Impulse Weighted Average Sound Level: Leq
Maximum Peak Level: Lpeak
Time Weighted Average (TWA): Using Q=5
Maximum Sound Pressure Level: Lpmax
Minimum Sound Pressure Level: Lpmin

SOUND EXPOSURE LEVELS
Sound Exposure Level: Leq

STABILITY TIME
3 seconds after start

EXCHANGE RATE
Q=3 dB and Q=5 dB

OVERLOAD INDICATION
RMS: at 140.4 dB (0.1 dB above measurement range)
Peak: at 143.4 dB (0.1 dB above peak range)

STABILITY TIME
3 seconds after start

MEMORY/DATA STORAGE
Up to 180 hours with 1 minute logging interval

STABLE Dose %
8 hour projected dose percentage

MEASUREMENT RANGE
Sound Level Range: 65.0 – 140.3 dB (LAeq; LCeq)
Peak Range: 95.0 – 143.3 dB(C)

STABLE logging
Up to 180 hours with 1 minute logging interval

STABLE STABILIZATION TIME
3 seconds after start

EXCHANGE RATE
Q=3 dB and Q=5 dB

UNDER RANGE
1 dB below measurement range

BATTERY
Internal Rechargeable NiMH Cells: recharge using charger (ZG-0860)
Battery Operating Time: 28 hr
Battery Status Indication: Symbol and estimated remaining time (hr)

BATTERY REPLACEMENT
Requires authorised service

MEASUREMENT CONTROL
Manual Control Mode: Use buttons for Start/Stop

Download
Data is downloadable to the PC using infrared- to-USB cable (AO-1492)

TEMPERATURE
–10 to +50 °C (14 to 122 °F)

HUMIDITY
30 to 95% RH (non-condensing)

ENVIRONMENTAL CONDITIONS
Operating temperature: 0 to +40 °C (32 to 104 °F)
Storage temperature: –10 to +50 °C (14 to 122 °F)

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Internal Rechargeable NiMH Cells: recharge using charger (ZG-0860)
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Ordering Information

**Type 4448-001**
*Personal Noise Dose Meter with HML parameters*

**Type 4448-002**
*Personal Noise Dose Meter with HML parameters, Intrinsically Safe Model*

### Starter Kits

All Starter Kits include the following accessories:
- ZG-0860: 3-way charger
- ZG-0864: Power supply for ZG-0860
- QA-0232: Screwdriver
- KE-0461: Carrying case
- AO-1492: Infrared-to-USB cable
- DS-1174: Spare windshields for Type 4448 (5 pack)
- BR-2212: Multilanguage field guide for Type 4448

**NOTE:** Starter kits with 10 units include an additional charger, the cable to connect chargers and an extra pack of spare windshields.

### TYPE 4448-001 STARTER KITS (STANDARD MODEL)

- **Type 4448-101**
  1-unit Starter Kit

- **Type 4448-103**
  3-unit Starter Kit

- **Type 4448-105**
  5-unit Starter Kit

- **Type 4448-110**
  10-unit Starter Kit

### Type 4448-001 Starter Kits with Sound Calibrator Type 4231

- **Type 4448-C-101**
  1-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-103**
  3-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-105**
  5-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-110**
  10-unit Starter Kit with 1 × Type 4231

### TYPE 4448-002 STARTER KITS (INTRINSICALLY SAFE MODEL)

- **Type 4448-201**
  1-unit Starter Kit

- **Type 4448-203**
  3-unit Starter Kit

- **Type 4448-205**
  5-unit Starter Kit

- **Type 4448-210**
  10-unit Starter Kit

### Type 4448-002 Starter Kits with Sound Calibrator Type 4231

- **Type 4448-C-201**
  1-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-203**
  3-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-205**
  5-unit Starter Kit with 1 × Type 4231

- **Type 4448-C-210**
  10-unit Starter Kit with 1 × Type 4231

### Optional Accessories

- **Type 4231**
  Sound Calibrator

- **DV-0216**
  Crocodile Clip Mounting Kit (5 pack)

- **DV-0217**
  Pin Mounting Kit (5 pack)

- **DV-0218**
  Harness Mounting Kit (5 pack)

- **DV-0220**
  Hard-Hat Mounting Kit (1 pack)

- **DV-0221**
  3-Point Harness (1 pack)

- **DS-1174**
  Spare Windshield for Type 4448 (5 pack)

- **Type 2245-W-S**
  B&K 2245 Sound Level Meter with Work Noise Partner Software

### Service and Support Products

**ACREDITED CALIBRATION**

- **DOSE-CAI**
  Accredited Initial Calibration of Type 4448

- **DOSE-CAF**
  Accredited Calibration of Type 4448

* Each Type 4448 comes with one set of crocodile mounting clips and one set of safety pin mounts.