Quick Start Guide

Quest™ Edge 7 and 8 Personal Noise Dosimeters

TSI | QUEST™

Checking the Equipment

If your instrument was sent to you in a storage case, remove all the packaging and become acquainted with the following equipment so you can quickly get started with your noise studies.

NOTE: Depending on the accessories you selected, the dosimeter may have the following components.
For the charging dock, you will either have an EdgeConnect1 or an EdgeConnect5.
(For more information on parts/accessories, refer to tsi.com)

Figure 2-1: Identifying your equipment

Quest™ Edge 7 Dosimeter

or

Quest™ Edge 8 Dosimeter (Intrinsically Safe)

Optional Detection Management Software (DMS) - laptop not included

EdgeConnect5 Charging Dock

Extra Windscreen for Microphone

EdgeConnect1 Charging Dock

USB cable connects EdgeConnect to the PC

AC Power Supply

Quest™ Edge Dosimeter Display and Keypad

1 Windscreen and microphone

2 LED Indicator
- **Red** - indicates dose exceeded the alarm level
- **Amber** - dosimeter stopped
- **Green** - dosimeter measuring

3 Display (measurement view shown)
- View data and various indicators

4 Side Button
- Press once to make voice notes
- Press and hold for 10 seconds to reboot the unit

5 Soft Button(s) ⌐
- Used for selecting corresponding on-screen function, ex: Pause, Run, Stop

6 Enter Button ↵
- Used to switch between (toggle) dosimeters one, two, three, and four measurements and settings
- Used to accept or choose a parameter setting

7 Up/Down Arrow(s) ▲▼
- Used to scroll through display/screen views

8 On/Off ⏻
- Used to power On/Off the meter
- Used to exit a menu

Turning On / Turning Off

1) **To turn on the dosimeter**, press the **On/Off** button. The splash screen will appear indicating the firmware version. After the splash screen disappears, the screen will be in the measurement view.

2) **To turn off the dosimeter,** press and hold the **On/Off** button. A "3, 2, and 1" countdown will appear as the dosimeter is powered off.

Splash Screen   **Measurement Screen**   **Countdown Screen**

Calibrating

It is recommended to calibrate your dosimeter before you run your study(ies) and after your study(ies) to ensure highly accurate measurement results. The steps below address how to calibrate for either a pre or post study.

Calibrating the dosimeter

1) Remove the windscreen from the dosimeter by twisting and pulling the black ring (do not pull on the foam).

2) Ensure the dosimeter is turned on and in the stop mode. (See "Turning on" and "Turning Off".)

3) Slide the dosimeter into the mouth of the calibrator.
   NOTE: Ensure the adapter ring is inserted into the mouth of the calibrator before you slide the dosimeter into the cavity.

4) Turn on the calibrator and ensure parameters are set to 114 dB and 1000 Hz. (See calibration manual for operation details.)

5) CAL" will flash on the display when detected.

6) Press the **Enter** button to trigger the calibration display.

7) To match the values on the calibration display, press repeatedly the **Up** or **Down** arrow in order to select the exact output on the calibrator (i.e., 114 dB).

8) When you have selected the appropriate dB level, press the **Enter** button.

9) A shaded bar will appear loading your calibration information. Then a summary calibration screen will appear indicating the dB level with date and time displayed.

10) To return to the measurement view screen, press the **On/Off** button.

11) To end the calibration steps, turn off the calibrator. Detach the dosimeter from the calibrator.

NOTE: A manual calibration can be started by simultaneously pressing the **Up/Down Arrow** keys.

Calibrating

Adapter Ring

Setting up the Quest™ Edge 7 and 8 Dosimeters

The EG7 and EG8 model comes equipped with four customizable user setups. You have the option to customize the parameters for threshold values, exchange rate values, filtering, an upper limit value, and a criterion level. The EG7 / EG8 model also has the 1/1 octave capability that can be enabled via DMS.
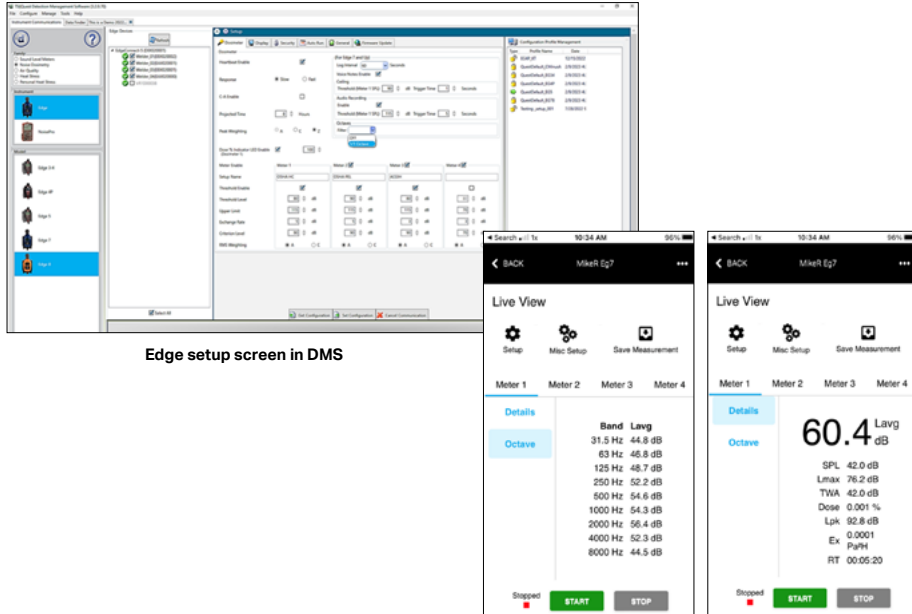
Edge setup screen in DMS

Edge live view screen in Edge dB

Overview of Running a Study

On the Quest™ Edge 7 and 8 dosimeters, with the introduction of the **Pause** functionality, the time between **Run** and **Stop** is considered a session. If a user does a **Run**, **Pause**, **Run**, **Pause**, **Stop**, the data in DMS will show two studies within a Session. The downloaded file in DMS will show a '+' symbol on the left. Clicking on it will dropdown a 'Study 1' and 'Study 2' options.

Quick Help List: Typical Dosimetry Session

1) Turn the dosimeter on and check your battery power.

2) Set up your study parameters via DMS.

3) Calibrate the dosimeter.

4) Attach the dosimeter for your personal noise study.

5) Press the **Run** soft key button to start a session.

6) When you are ready to pause your session, press the **Pause** soft key button.
   The previously recorded data is now classified as a study.

7) To stop the session, press the **Stop** soft key button .

8) Review your results either on the meter, via Quest™ Edge dB APP (on Bluetooth®-enabled devices)
   or download to DMS for further analysis (graphs/charts, saving and printing).

Additional Features (See User Manual for Specific Use Instructions)

The Octave Band Graph displays the SPL (Sound Pressure Level) and L_{avg} or L_{max} values/graph for each frequency band in a given audio spectrum (Note: refer to pages 34-35 in the DMS manual for more information on this feature).

The Session Review screen allows reviewing of the last 5 sessions stored on the device. It will display the **Start** time, **Run** time, **L_{avg}** and **Dose** for those sessions.

Audio Recording When enabled (checked) in DMS this function will automatically record audio of a noise event above a configurable dB level.

Voice Notes When enabled (checked) in DMS, the user can, by the press of a button, make verbal notes about location description or noise events, which will display in the time-stamped data set.

Ceiling Threshold is configurable based on dB level and time period for which ceiling is exceeded. Ceiling Count is the number of times the sound level measured by meter 1 has exceeded the ceiling threshold settings.

Charging your Dosimeter

How to Charge

1) Plug in the power adapter to the EdgeConnect charging dock (see power adaptor below).
   - The EdgeConnect's lower LED will appear solid when powered on.

2) Slide the dosimeter downward onto the hook of the EdgeConnect until it clicks. It will be fully seated.
   NOTE: The top LED will appear as red flashing and will change to solid green when fully charged.
   A) **Backside of instrument:** The open cavity & contacts slides into the "Hook"
   B) Example of the dosimeters docked for charging

Backside of Edge

EdgeConnect Charging Dock

Common Noise Dosimeter Terms

Criterion Level (CL) - expressed in decibels (dB), it is the maximum allowable accumulated noise level that results in 100% dose. Regional noise standards specify criterion level.

Dose - expressed in percent, it is the percent of the maximum exposure that has accumulated over the run time. 100% is the maximum allowable exposure. 100% dose occurs for an average sound level equal to the criterion level for an 8 hour period.

Exchange Rate (Doubling Rate) (ER)- the decibel level that would double or halve the sound exposure. For instance with a 3 dB exchange rate the sound exposure doubles with every 3 dB increase, and the sound exposure is halved every 3 dB decrease. Regional noise standards specify the exchange rate.

L_{avg} - stands for "level average" and is the average sound level measured over the run time.

L_{eq} - stands for "level equivalent" and is the average sound level measured over the run time but is calculated with a 3 dB exchange rate with no threshold.

Max Level - the highest weighted sound level that occurred, also allowing for the response time that the meter is set to. If the meter is set for A weighting with Slow response then the Max level is the highest A weighted sound that occurred applying the Slow response time.

Peak level - the highest instantaneous sound level that the microphone detects. Unlike the Max Level, the peak is detected independently of the slow or fast response time the unit is set for.

Response Time (Fast, Slow, Impulse) - how quickly the circuitry responds to changing noise levels. These are ANSI/IEC defined response times. Most occupational noise standards require slow response time.

Threshold Level (Cut Off) - noise levels below the threshold are integrated as zero decibels. This will affect L_{avg}, L_{eq}, TWA, and Dose values. Most regional noise standards specify the threshold level, if any.

TWA (Time Weighted Average) - takes the noise exposure accumulated in the run time and applies an eight hour time period. If the meter was in run for 5 minutes, the TWA takes that 5 minutes of noise input and averages it into an 8 hour run time. The TWA in this case would be much lower than the L_{avg}.

Weighting (A,C,Z) - frequency filters that cover the frequency range of human hearing. A weighting greatly attenuates high and low frequency noise to mimic how the human ear hears noise. C weighting also attenuates high and low frequency noises, but not nearly as much as A weighing. Z weighting does not apply any attenuation, or weighting, to any frequency. Most regional noise standards require a weighted measurements.

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