



## ▶ Acoustic Energy Meter

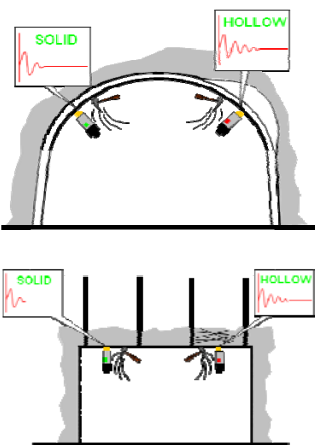


The Acoustic Energy Meter (AEM) is a hand-held, non-destructive testing instrument used to measure the integrity of lined and unlined tunnel surfaces. Its novel measurement technique is firmly based on the company's specialist experience in geology and rock mechanics worldwide. Applications to date include condition surveys of concrete segments and shotcrete tunnel linings and regular safety inspections of gypsum, coal and hard rock mines.

The AEM (pictured) comprises an integral microprocessor, geophone and readout unit, with optional external geophone for high tunnel roofs. Operationally, the meter automatically senses and analyses the complex reverberations when the tunnel roof, or wall, is struck with a hammer.

The readout provides a normalised figure of integrity and gives:

- ▶ A high reading for a detached, fractured or poorly backfilled lining or loose rock and
- ▶ A low reading for intact rock or a well grouted lining.



Furthermore, by plotting the readout data, a detailed picture of the tunnel sub-surface condition can be gained; an effective and proven survey tool.

As well as an alphanumeric display, the meter incorporates a pre-adjustable green, amber, and red LED level indicator. In this way the meter can be used to give rapid indication of safe working conditions in, for example, mining operations or a tunnel heading.

Of necessity, the meter is made for use in harsh and potentially flammable environments. Model RDL4 is approved in the USA by MSHA (2G-4109-0) for use in methane-air atmospheres and has Australian Ex ia I IP65 approved. Model RDL3 is certified Intrinsically Safe for methane, Ex ib I T 4, in South Africa, (SABS).

In practice the Acoustic Energy meter is simple to use. With the meter switched on, hold geophone against the suspect area with one hand and hit the tunnel surface (within 20 cm of the meter) with a hammer and note the reading or LED colour. Interpretation of meter's normalised readings is, by design, readily assimilated with local conditions. Golder RMT with its extensive experience in rock mechanics can provide appropriate training and back-up to compliment this field instrument.

Demonstrations can be undertaken on request.

For further information please contact:

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### Approval Numbers:

- ▶ RDL3 – South Africa - Ex ib I T4.
- ▶ RDL4 – USA, MSHA Approvals No.2G-4109-0.
- ▶ RD4 – Aus, Ex ia I IP65

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