Safety Bulletin

Issue # 02-2025

ENERGY SAFETY CANADA

Requirements for Blasters Ohm Meters & Multimeters

In response to challenges in sourcing ohm meters and the risks associated with using improper equipment, this bulletin is intended to raise awareness of best practices and potential hazards when using blaster's ohm meters and multimeters.

What is a Blasters Ohm Meter?

Blasters ohm meters and multimeters are intrinsically safe, specialized devices that measure resistance in blasting circuits and safeguard against detonation.

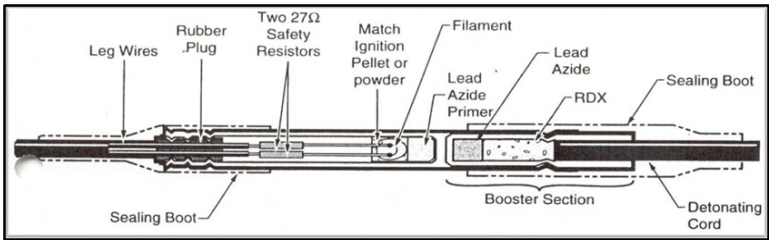
Standard blasters ohm meters are galvanometers. It measures resistance through connections between a coil of wire and the leads of a blasting circuit, which creates a magnetic field, but are current-limited.

Blasters multimeters are manufactured to include current-limiting circuits as a safeguard to ensure they do not accidentally cause detonation. When testing a blasting circuit, current-limiting ohm meters should be used to ensure safety. Conventional or off-the-shelf multimeters should never be used on blasting circuits.

Unlike blasters meters, off-the-shelf multimeters can exceed the no-fire limit of the detonator which can potentially trigger explosives.

To ensure safety, meters must be labelled as a "blasters ohm meter", "blasters multi-meter" or "blasting galvanometer" with an Original Equipment Manufacturer label. Meters without a "blasters" or "blasting" label should not be used.

Surface Safety Testers are designed specifically for digital circuit, multi-stage detonators. Each tester is manufactured specifically to the detonator's manufacturer.



Detonator Risk

Many tests have been conducted to show the damage close range detonation could have. The image below shows the effect of det-cord wire on a ballistic hand.

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Legislation

Alberta

OHS Code Part 33 Explosives:

495(1) An employer and a blaster must ensure that (a) electric detonators, blasting circuits and blasting machines are tested with a galvanometer or circuit tester equipment before detonation.

British Columbia

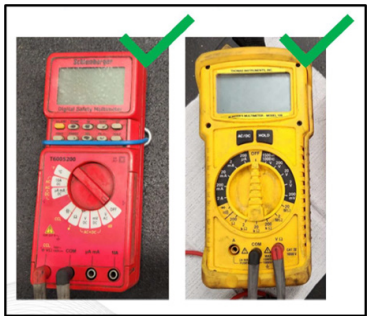
WorkSafeBC Part 21 Blasting Operations:

21.63 (3) If the electric blasting circuit is equipped with an electric detonator or electric igniter, the blaster of record must ensure that before firing:
(a) the resistance of the circuit is measured using a blasting galvanometer or another instrument specifically designed for testing electric detonators and circuits containing them.

Best Practices

Field Use:
Blasting meters should be kept warm due to low current output and temperature-sensitivity. Before use, the meter should be tested as per the manufacturer instructions. Meters that fail testing must be tagged as out of service and sent for inspection and repair.

Calibration:
New meters come calibrated and include a calibration certificate. Meters should be calibrated as recommended by the manufacturer.



Resources

- WorkSafeBC Part 21: Blasting Operations
- Alberta OHS Code: Part 33 Explosives
- British Columbia Blasters Handbook
- API RP67 Edition 3
- IME SL32 Reference