



# VOLTAGE GRADIENT PROBE

The Voltage Gradient Probe (VGP) is a robust, hand held, subsea unit that provides added diver safety and diving assurance in accordance with IMCA 45 standard D045, R 015.

The primary use is to provide a robust indication of the presence of any local AC voltage gradients as part of a risk assessment and management scheme while working on or around subsea equipment connected to an electrical supply, for example an impressed cathodic protection system. The VGP should never be touched against known or suspected “live” parts and comes pre-fitted with an insulating cap to prevent such accidental contact

The VGP gives an indication of the presence and magnitude of the AC voltage gradient using a series of 6x LEDs, which illuminate progressively at clearly defined trigger voltages, in an easy to interpret ‘traffic light’ configuration.

A dedicated Battery Status LED provides a clear indication of the battery status and also provides confirmation that the unit is functioning.

The VGP comes with a dedicated Testbox which allows functionality to be tested prior to deployment by following a quick, simple, and intuitive procedure.

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## General Specification:

Probe minimum battery life at 5°C	2 days (10 days typical)
Probe Battery Type	3x Standard 1.5V 'AA' Alkaline cells (Duracell MN1500)
Testbox Battery Type	1x Standard 9V 'PP3' Alkaline cell (Duracell MN1604)
Probe operating temperature range	-5°C to +50°C (+23°F to +122°F)
Probe external pressure rating	300m (984ft) / 30 bar (435Psi)

## Probe Sensor:

Measurement gap (Between handle and Endring)	140mm (5.5")
Measurement frequency range	50Hz to 500Hz
LED 1 illumination level	20mVpp ±4mVpp (50mVrms/m*)
LED 2 illumination level	50mVpp ±4mVpp (130mVrms/m*)
LED 3 illumination level	120mVpp ±4mVpp (300mVrms/m*)
LED 4 illumination level	300mVpp ±9mVpp (760mVrms/m*)
LED 5 illumination level	800mVpp ±24mVpp (2020mVrms/m*)
LED 6 illumination level	2000mVpp ±60mVpp (5050mVrms/m*)

\*Assumes a sinusoidal waveform satisfying  $V_{pp} = 2.828 \times V_{rms}$  across the measurement gap.

## Probe Materials:

Handle Material	DUPLEX STAINLESS STEEL 2205
Endring Material	DUPLEX STAINLESS STEEL 2205
Cap Material	BLACK ACETAL HOMOPOLYMER
Housing Material	ACRYLIC
Bleedscrew Material	ALLOY BRONZE CA104 EN 12163
Handle o-rings	2x BS 50-220 NBR70
Endring o-rings	1x BS 50-213 NBR70
Bleedscrew o-rings	1x BS 50-008 NBR70

## Probe Dimensions:

Length	392.0mm (15.4") ±0.25mm
Diameter	49.0mm (1.9") ±0.25mm
Weight in air	2.2kg (4.9lbs)
Weight in seawater	1.8kg (4lbs)

