SEABED TERMINAL IMPACT NEWTON GRADIOMETER

STING

MkII

The **STING MkII** is a portable, tethered free-falling penetrometer (FFP) for measuring seafloor bearing strength. It is simple to operate such that first-time users can perform a seafloor analysis on sediments ranging from very soft mud to medium-density sand with minimal instruction.

The STING can be deployed from a vessel as small as a large dinghy. It free-falls through the water, reaching terminal velocity, and impacts into the seafloor vertically with its slender shaft and foot. Its onboard electronics record the deceleration, which users can upload to its matching software for analysis after recovery.

Applications include harbour and environmental impact surveys, salvage and dredging operation planning, subsea cable and pipeline route selection, and many more.

PHYSICAL SPECS

Shaft length	**1m standard**, extendable in 1m segments to max 3m
Impact foot diameters	25mm (best for sand) 35mm 50mm (stainless steel) 70mm (aluminum) (best for mud)
Weight	**10kg w/ standard 1m shaft** +3kg for each additional 1m shaft extension
Materials	304 stainless steel body Anodized aluminum end cap PVC tail cone
Power	Internal rechargable battery
Recommended retrieval tether	4.8mm diameter type SC-6 braid

MEASUREMENT SPECS

Sampling rate	2kHz
Load bearing strength measurement range	0kPa to 950kPa
Water depth	
Measurement range	0m to 200m
Resolution	0.05m (12 bits)
Maximum operational depth	300m
Acceleration	
Measurement range	0G to +10G
Resolution	0.0025G (12 bits)

DATA AND SOFTWARE SPECS

Data acquisition triggering	Upon automatically detecting water immersion, or upon reaching a preset depth (0m to 200m) to economize memory usage		
Memory capacity	~4 minutes (acceleration only), or ~2 minutes (acceleration + depth)		
Download speed to computer	115.2 kilobaud	**Download time**	~4 minutes
Software	Communications and Data Analysis Runs under Windows 98, NT 4.0, 2000, XP, 10, and 11		
Software analysis outputs	Calculation of various kinematic parameters for each recorded impact event Estimate of seabed bearing strength profile (presented as bearing strength vs penetration depth) + indication of sediment strata		

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