

# SoniDens

## *In situ density profiles of fluid mud*

*The SoniDens is an accurate piece of equipment for the measurement of the in situ density of fluid mud (cohesive sediment).*

The **SoniDens** is able to delineate mud layer thicknesses (also thin layers of a few cm) and determine the density of each fluid mud layer. The **SoniDens** includes a density profiling tool,

data cables, dedicated software, data transformation hardware and a transport case. A laptop or PC is required for instantaneous visualisation of the data and data storage.



The **SoniDens** is lightweight (25 kg), which makes it easy to handle. Deployment of the **SoniDens** can be done from a vessel with a small deck crane and small winch. The standard data cable length is 35 metre, but can be extended to increase the measuring depth. Tidal, echosounder and GPS data (if available) from the vessel will be simultaneously read, included and presented for absolute depth values. The software runs on Windows 7.

### **Application: Nautical Depth Determination**

Siltation occurs in many ports and navigation channels around the world. Without dredging and other mitigating measures this results in draft restrictions for vessels entering the ports. The necessity to remove muddy sediments can be reduced by changing the current nautical depth defined by 210 kHz survey towards a nautical depth based on a defined density. Within the fluid mud layer the physical properties such as density and apparent viscosity increase with depth. At a certain depth a transition between the liquid and the solid state can be observed. This transition, associated with specific critical density, could be considered as the nautical depth according to the PIANC definition. For obtaining the actual nautical depth, mud density is the easiest and most accurate parameter to measure.

1



#### Contact

Feithspark 6  
Tolbert, The Netherlands

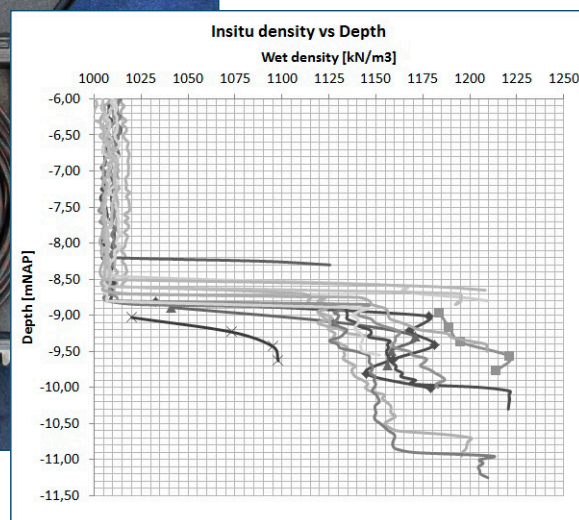
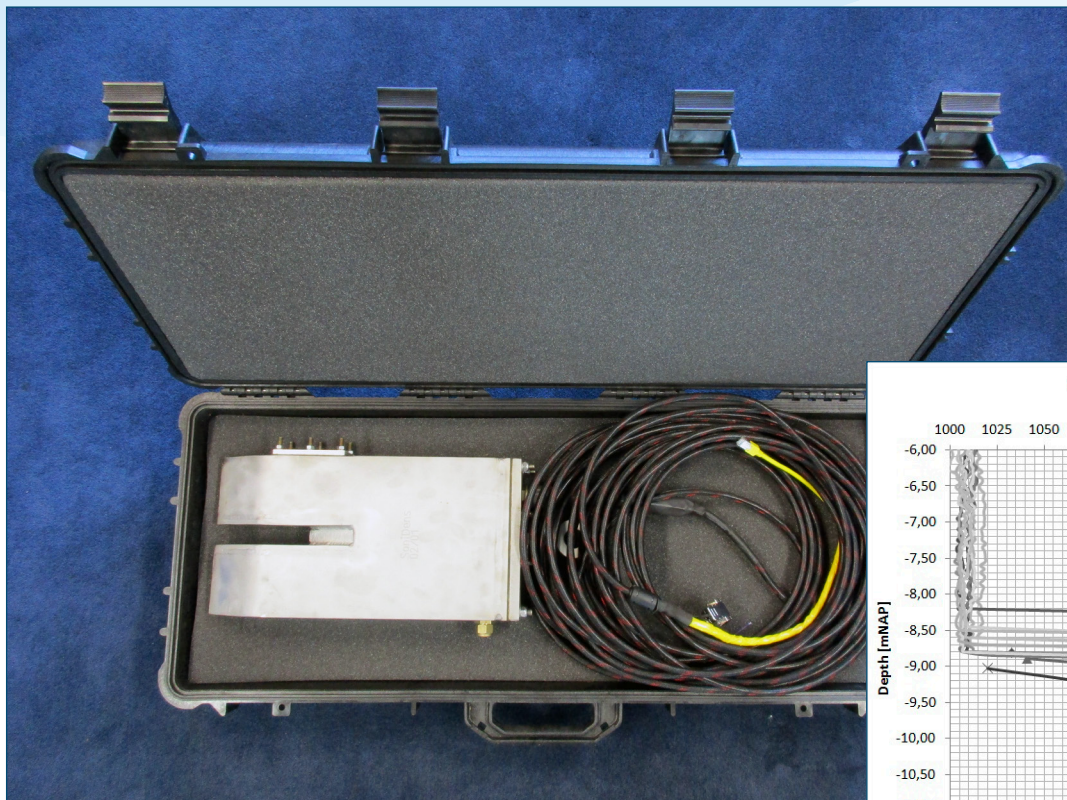
6 Queen's Drive  
Taunton, United Kingdom

E [info@semaso.com](mailto:info@semaso.com)  
W [www.semaso.com](http://www.semaso.com)



# SoniDens

## *In situ density profiles of fluid mud*



### Specifications

#### SoniDens

- » Weight 25 kg
- » Dimensions  $l \times w \times h = 50 \text{ cm} \times 20 \text{ cm} \times 8 \text{ cm}$

#### SoniDens in transport case (incl. 35 m data cable)

- » Weight 33 kg
- » Dimensions  $l \times w \times h = 100 \text{ cm} \times 45 \text{ cm} \times 20 \text{ cm}$

#### Auxiliary items in transport flight case

- » Weight 25 kg
- » Dimensions  $l \times w \times h = 65 \text{ cm} \times 55 \text{ cm} \times 30 \text{ cm}$

- » Density resolution  $0,001 \text{ g/cm}^3$
- » Density accuracy  $\pm 0,007 \text{ g/cm}^3$   
(vertical velocity  $0,76 \text{ m/min}$ )  
 $\pm 0,016 \text{ gr/cm}^3$  (vertical velocity  $3,8 \text{ m/min}$ )
- » Density range  $1.000 - 1.800 \text{ kg/m}^3$
- » Density frequency 2 MHz
- » Temperature range  $0 - 40 \text{ }^\circ\text{C}$
- » Power supply 110 - 220 V, AC, 50 Hz, 35 W
- » Depth range  $0 - 25 \text{ metre}$
- » Depth accuracy  $<0,5\%$  of measured depth (m)

### References

A list of reference projects is available via  
[info@semaso.com](mailto:info@semaso.com)



#### Contact

Feithspark 6  
Tolbert, The Netherlands

6 Queen's Drive  
Taunton, United Kingdom

E [info@semaso.com](mailto:info@semaso.com)  
W [www.semaso.com](http://www.semaso.com)