

# DIGITAL DREDGING PRODUCTION MONITORING SYSTEM

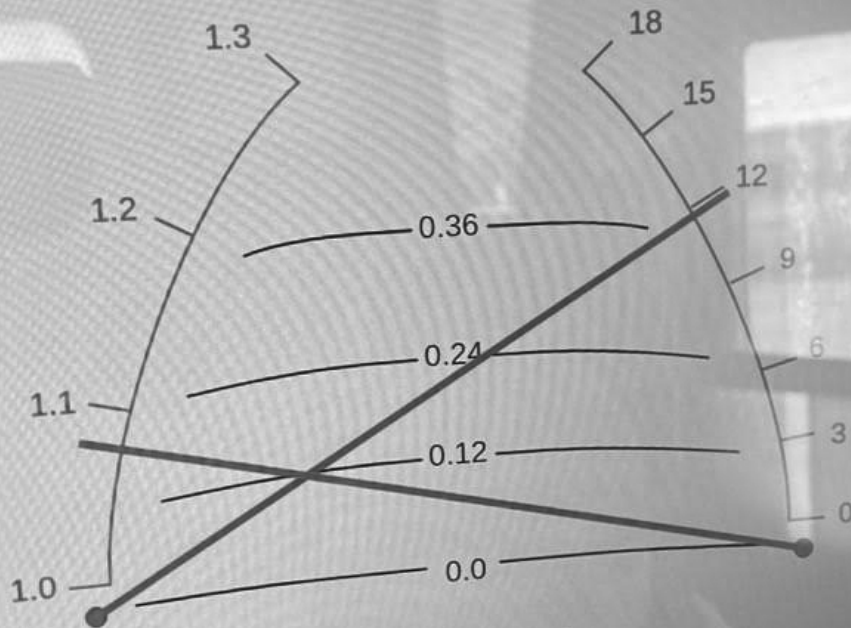
## DREDGING INDUSTRY

EDITION  
FEBRUARY 2023

t/m<sup>3</sup>  
1.077

Production  
0.196 t/s

ft/s  
11.777



Diameter Pipe: 10 in

To monitor the production speed in dredging applications, defined as the amount of material pumped per unit time (in tons/second), it is essential to know the slurry density (in tons/m<sup>3</sup>) together with the flow rate (in meters/second or feet/second) of the slurry through the slurry pipeline.

The Digital Dredging Production Monitoring System of Alia Instruments monitors the production by visualizing the flow and density of the dredger, and it converts the flow and density into production figures. The production is shown as current, day or shift production. The system also logs all the production data for future research and analysis.



## Real-time monitoring & data logging

Dredging companies who want to optimize their production and who want to investigate the dredger performance can profit from real-time insight in production data and offline monitoring possibilities of the production figures. It is a very cost-effective solution to increase dredging production.

The Digital Dredging Production Monitoring System visualizes digitally the production data of an entire run, instead of locally displaying only the current production as is the case with a conventional analogue cross needle meter. The advantage of digital production monitoring is that data can be stored and can be evaluated later for production optimization.

**i** For more information about Alia Instruments, please refer to the company profile.

## Optimal dredging performance

To be able to adjust the dredging process, from an economical point of view it is desirable to have the slurry density as well as the flow rate available in real-time or near real-time, within a few seconds after the measurement.

Density measurement is necessary for quality control purposes, to monitor the process consistency over time. Moreover, such measurements are necessary in preventing the pipe from becoming clogged due to 'too dense' slurries.



## Versatile, compact monitoring device

The Digital Dredging Production Monitoring System (or DDPMS in short) of Alia Instruments is based on state-of-the-art software and robust hardware. The hardware consists of a mini-PC connected to a colored 10-inch touchscreen monitor and an input signal receiver device. This compact combination has a footprint that fits within one piece of A4/Letter paper.

The system requires a supply voltage of 110-240V AC (two sockets, one for the mini-PC and one for the monitor). Due to 2 x 4-20 mA screw connections (one for flow, and one for density input signal), the monitoring device can be combined with all hardware for flow and density measurements. This includes the Alia Density Meter of Alia Instruments, a non-nuclear in-line slurry density meter for dredging and mining applications.

# Operation by touch screen

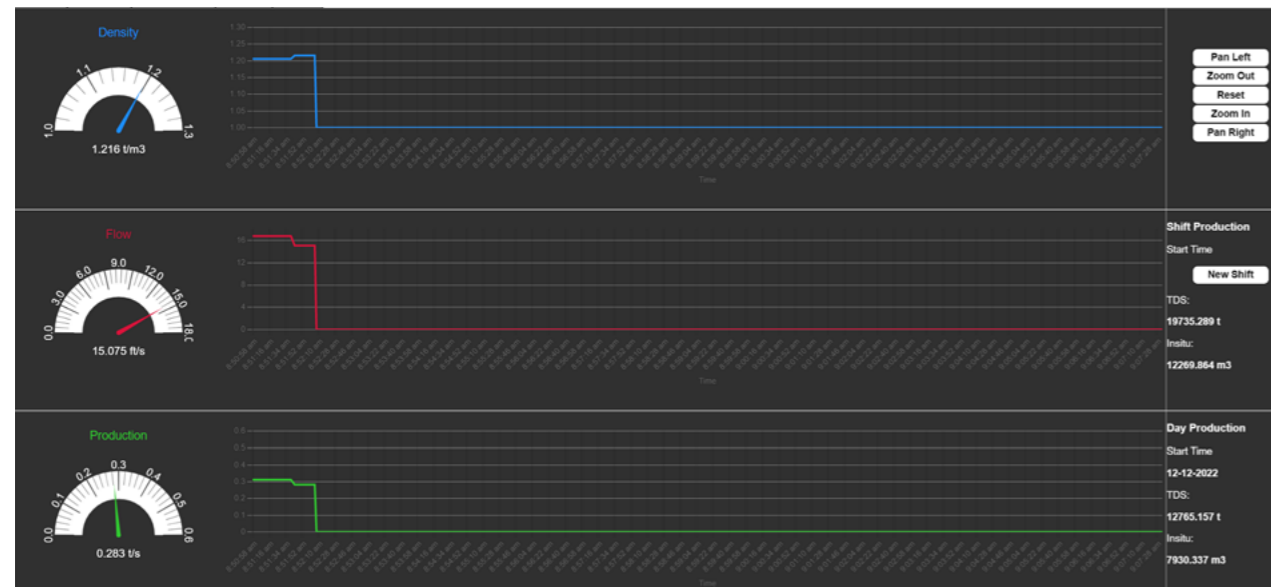
The 10-inch touchscreen monitor is the user interface for operating the device. The navigation bar at the top of the monitor enables changing between Current, Cross Gauge and Historical views, Settings and hosts four status indicator lights.

## Current view

The left side of the home screen shows three meters: for Density (tons/m<sup>3</sup>), Flow (m/s or ft/s) and Production Speed (tons/s). These digital meters are refreshed every second, showing the current value in real-time.

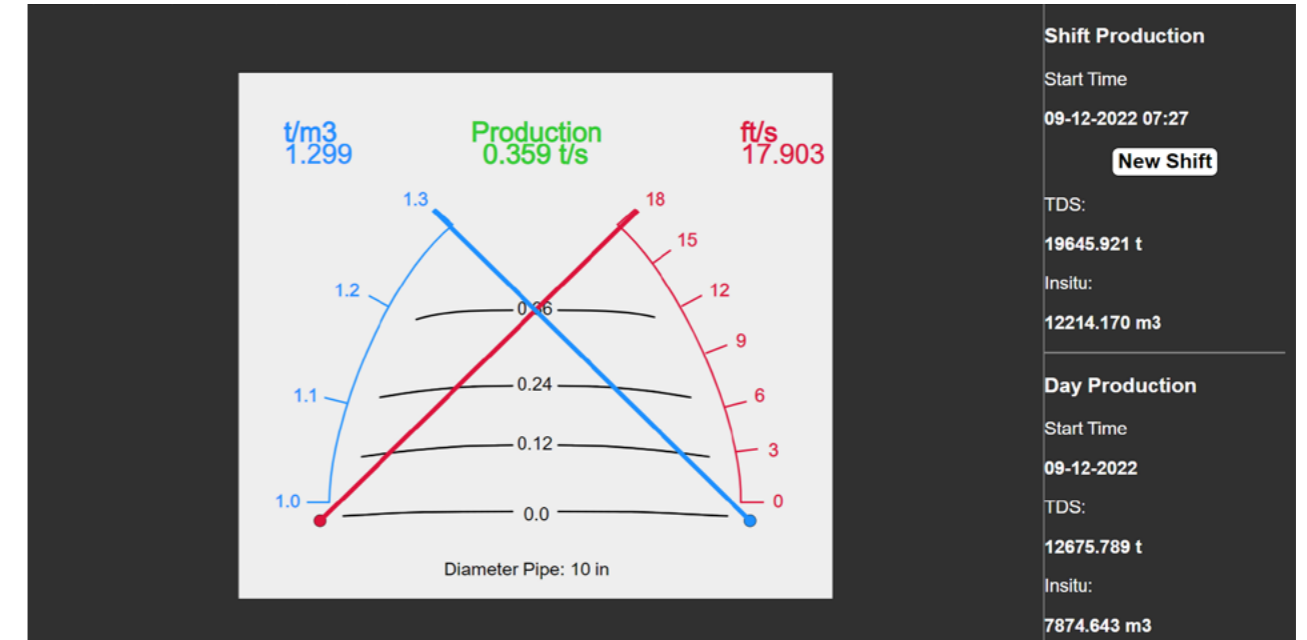
In the middle part of the home screen, three charts show Density, Flow and Production Speed vs. time. These charts are updated every 2 seconds, to view trends. The time window can be set up to 1 hour.

The right side shows the production at different time scales: Shift Production (new shift to be set by the user) and Day Production (refreshed at midnight). Based on input data as pipe diameter, water density, in-situ density and solid matter density, the calculated tons of dry solid (TDS) are shown here, as well as the start time.



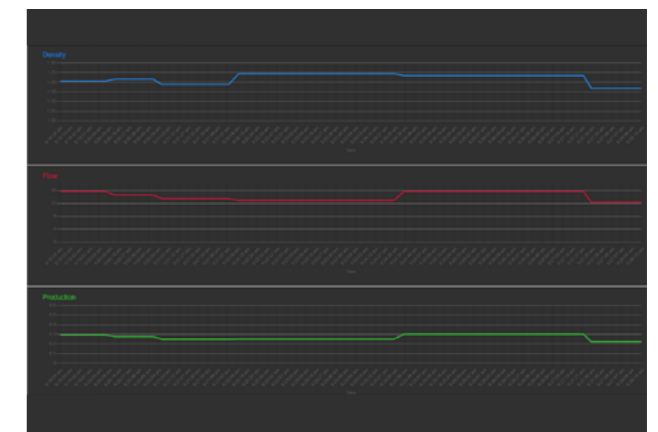
# Cross Gauge - dredging performance at a single glance


Real-time Density, Flow and Production Speed data are graphically displayed in a digital cross needle meter, and the current values are displayed numerically as well. Data are updated every second.



## Historical view

In the historic view of the dredging process, Density, Flow and Production Speed vs. time graphs can be viewed, with a maximum view time of 48 hours. Data of the last 365 days (1 year) prior to the current date are stored on the mini-PC in log files. It allows export of selected production data in .csv format via USB for further investigation.





“ At Alia Instruments we believe in designing sustainable and reliable products that keep matters simple. ”

**Jan Peters**  
CEO Alia Instruments



We aim to become, and remain, the market leader in non-nuclear density meters. This means that we are in constant development to further improve the meter and make it even more adaptable to the applicable processes. Our meter strives to be the most suitable solution offering sustainable production maximization to each and every one of our customers. We believe that as long as we maintain this focus, we will progressively achieve all of our targets.

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