INTERNATIONAL TECHNOLOGY GMBH

Professional engine monitoring and diagnostics

User Guide 3

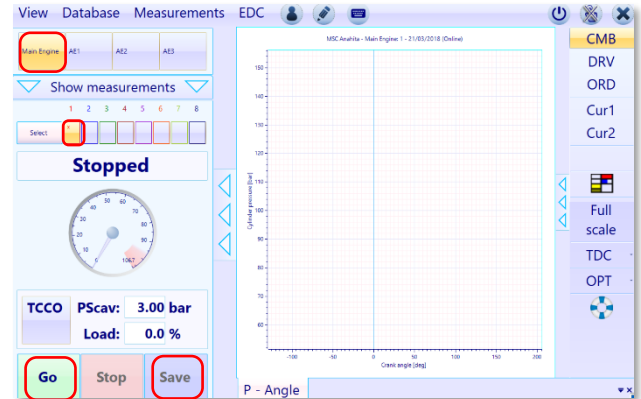## DocPad Operating Instructions Step by Step

Version 3 29.03.2018

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Professional engine monitoring and diagnostics

1 Collecting measurements (Step 1)

A) Start DocSoft

- Click on DocSoft icon on your desk top and start the software.

- If the entry screen appears like in the picture you are in the touch screen mode

- **Normally all engines are pre-selected, and you can start the measurement.**

B) Collect engine data

1. Connect TDC sensor cable and pressure sensor to DoPad and USB cable to tablet
2. Click on engine you like to measure on online panel
3. Select first cyl of engine
4. Open indicator cock and blow for few second to remove any soot deposits from channels
5. Close indicator cock
6. Screw in Thomson adapter with pressure sensor to indicator cock (do not thigh too much, wait around 30 secs to temperature equalization), then thigh.
7. Open fully indicator cock
8. Click GO button on Online panel
9. Observe RPM gauge and P-Angle diagram
10. When you see RPM and Combustion curve on diagram click SAVE button
11. Close indicator cock
12. Dismantle Thomson adapter with sensor
13. Go to next cylinder and repeat sequence
   (check that software is automatically coming to next cyl no 2 on Online panel)

Attention: If the Thompson adapter is already hot you do not need to wait again 30 secs to make the measurement

## 2. Fill out monthly performance report (Step 2)

The software contains different engine performance reports and separate fuel consumption reports for all engines. With every new measurement the reports need to be fill out.

Remark: To generate a report please use the non-touch screen mode. If you received a workstation upgrade kit for your DocPad tablet, we recommend using the keyboard and mouse for this operation which will be much easier.
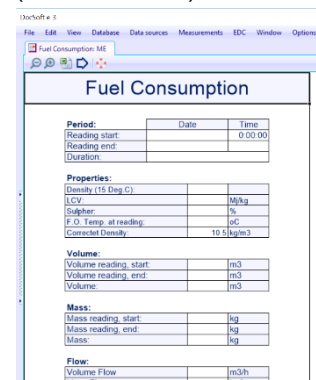
A) Report Overview

- Main Engine

Performance Report
Sulzer or MAN
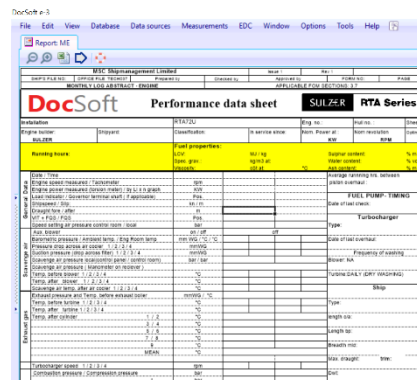
Fuel consumption
(calc. flow meter).

- Diesel Generators	Performance Report (4-stroke)	Fuel consumption (flow met / daily tank)

B) Activate Report

- The reports for your engines are preselected and will always stay.
- Please proceed as following:
  ->select engine
  ->select view
  ->activate Report 1 and 2

C) Fill out Report

- Select engine from the engine selection panel "show engines"

- If not already done select only one measurement with all cylinders from panel "show measurement" as the report template handles just one measurement date at the same time.

Remark:

- 1. Select Report 1 to fill out main engine report, then select Report 2 To fill out the fuel consumption report (same with DG's).
- The measurements of the DocPad are automatically filled in the report. All other field not measured have to be filled out manually by writing directly in the desired cells.
- To activate the cell for writing click twice.
- The data will be stored if you jump to another cell or by closing the sheet

Attention: For numbers please use dot "." instead of comma ",".

3. Check measurements in different views (Step 3)

A) Select view

- Go to view to see the measurement in different view's and select from the list:
  ->Select the views

- The main screen shows views and stay for the next measurements to view

B) Engine diagnostics view

The engine diagnostic in DocSoft automatically detects faults with recommendations build on role based models (selected parameter groups). The diagnostic cases are build in EDCenter and cloned by DocSoft.

- **Engine evaluation:**
  Overall engine condition shown in severity levels

- **Severity levels**
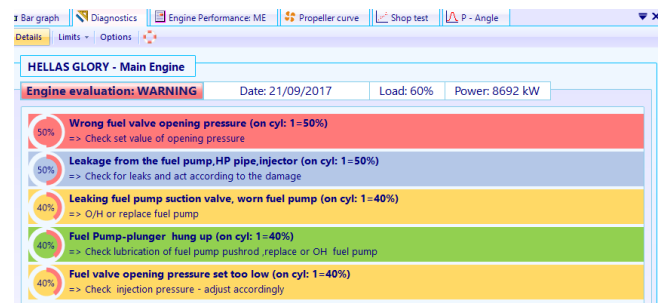
moderate	medium	high	warning

  The faults are grouped in 4 action levels called severity levels
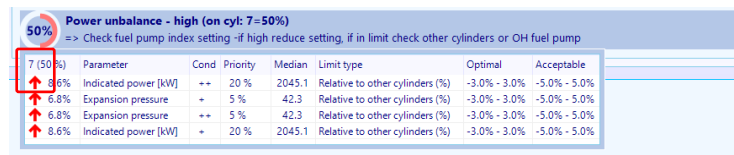
- **Fault accuracy in percentage**
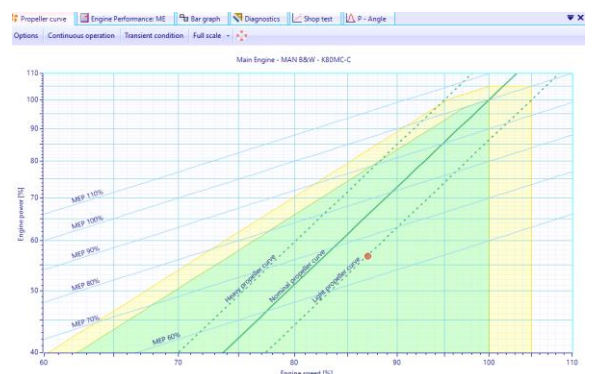 Less parameters fulfilling the given case (role based) means lower accuracy vis versa higher

- **Check parameters prove the case**
  ->Click on percentage cyrcle to open proving parameter
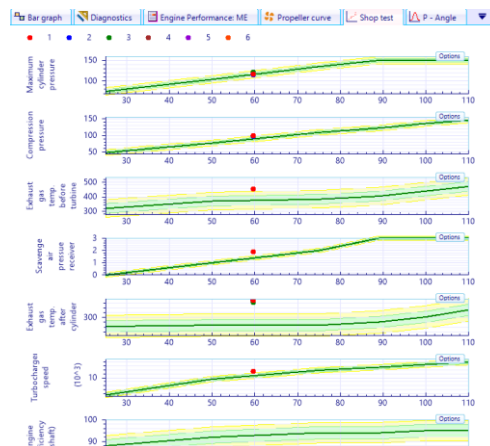
C) Propeller curve

To use the propeller curve the load information in the engine performance report is essential!

D) Shop Test view

To view all shop test curves please use scroll bar or print by report function.
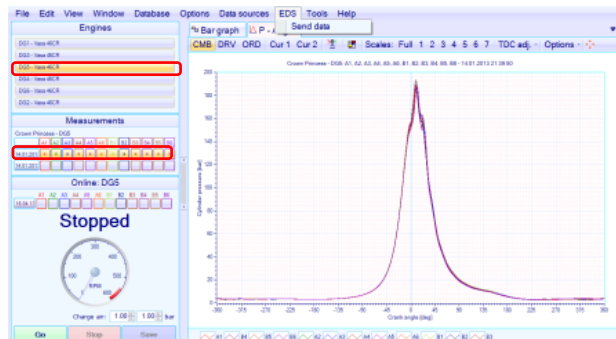

4. Transfer measurements (Step 4)

A) Transfer from DocPad to EDC

This operation requires that the DocPad can communicate with shipsnetwork (need to be activated by your IT department).
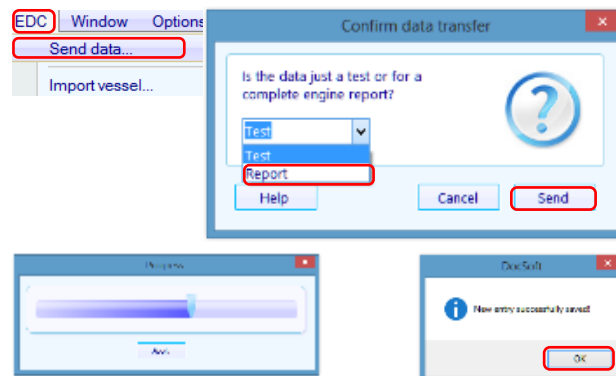
1. Select the desired data from the measurement panel
2. Please validate the data before you send to EDC.
- Fill out Report complete! (EDC show only what you send)
- TDC adjustment (curves are aligned in pressure angle window)

Send report content to EDCenter
1. Select desired measurements. Multiple measurements can be send to EDC.

2. Click on EDC
   Select: Send data

3. Select Report (not Test)

4. Click: Send

5. Status bar transferring data to EDCenter appears
   -> click "OK"

Remark: If you forgot to fill out report you can complete report on the measurement and send complete data once more to EDCenter!
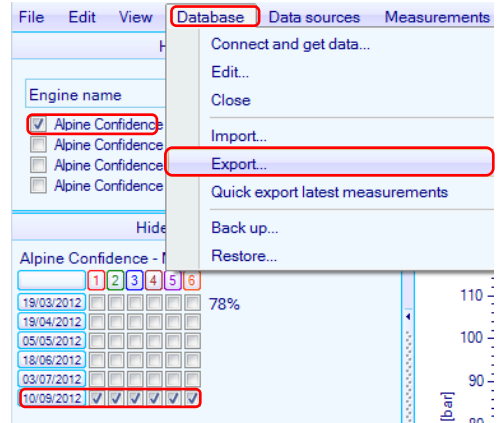
B) Transfer to vessel server (by USB memory stick)

This operation requires that the DocPad can communicate with shipsnetwork (need to be activated by your IT department).
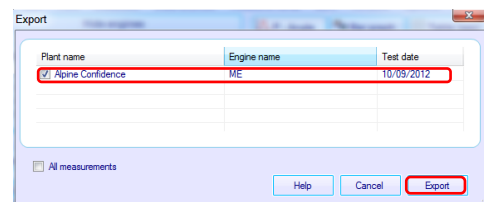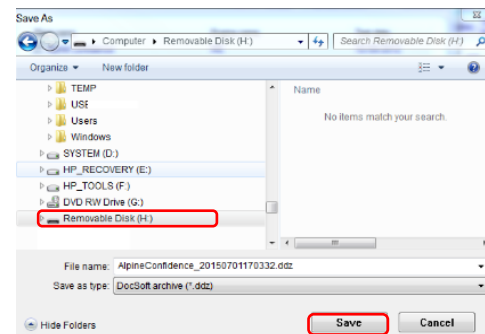
Transfer on Tablet

1. Select "Measurements"
2. Select "Database" and"Export"

3. Export menu appears
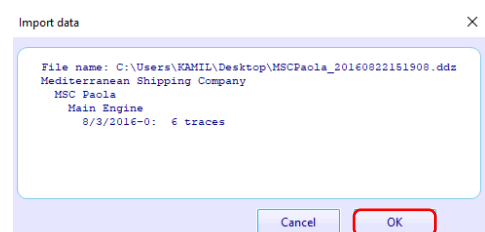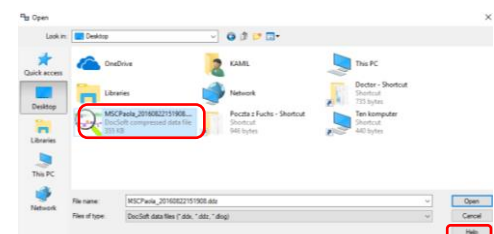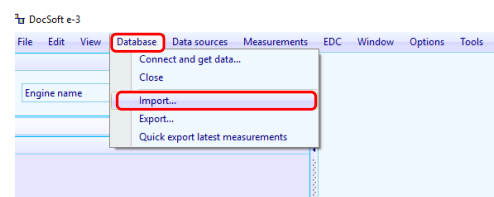   -> tick on measurement
   -> select Export

4. Windows menu appear
   -> tick on measurement
   -> select Export

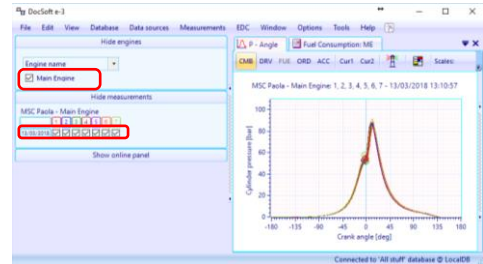**Import on vessel server from USB stick**

1. Start DocSoft and proceed as following
   -> Select Database
   -> Select Import

2. Window menu appear. Now select location where you transferred measurement (in this example from desktop).
3. -> Select ddz file
   -> Click "Open"

4. Import menu appear please accept
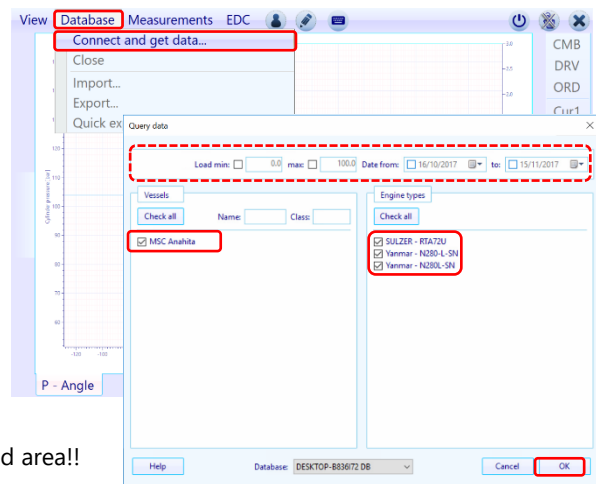   -> Click "OK"

5. DocSoft main screen appear with the imported measurement stored in SQL database. To view the measurement, proceed as following:
-> Click on Engine
-> select measurement

6. Finalize monthly engine performance report if not already done to transfer the measurements to onshore by mail.

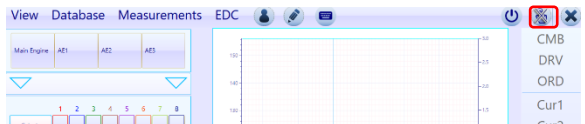## 5. Operation Q&A (Question and Answers)

A) Engine database missing

- If you do not see engines on the entry screen you have to go to Database. Select:
->Database
->and Connect and get data

- The database window appears.
From the left panel tick on:
->vessel or click "Check all"
From the right panel tick on:
->all engines or "Check all"
->Click "OK"

- **Attention:** Do not tick on any fields in the dotted area!! It will be used to search data

B) Check TDC Sensor (use or not)

- Depending whether TDC sensor is used or not check settings in windows view and click on icon:
->non touch screen mode

- Screen will change to standard windows mode
->Data Source and Settings
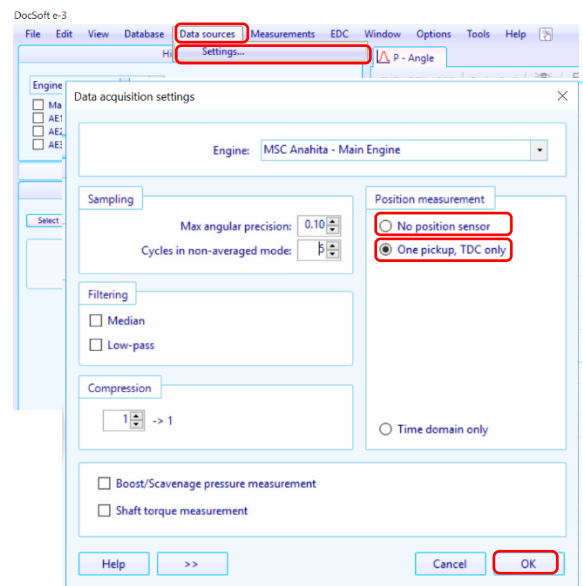- Data acquisition settings window will appear

TDC sensor to be used click:
->One pickup, TDC only
->click "OK"

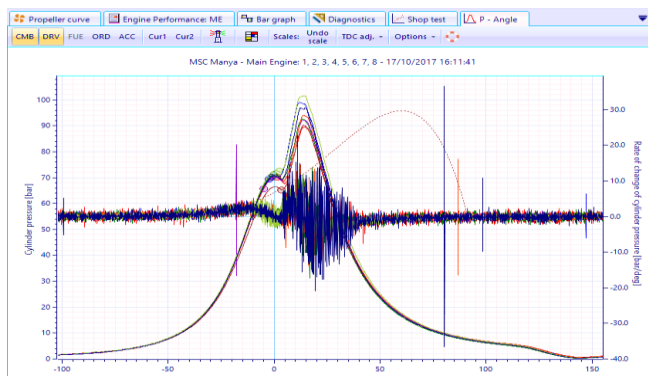No TDC sensor used click:
->No position sensor
->click "OK"

C) How to adjust TDC

If a in measurement TDC is not or wrongly adjusted and the extrapolation line is showing as in the picture use the following process to adjust TDC before sending data to office or EDCenter:

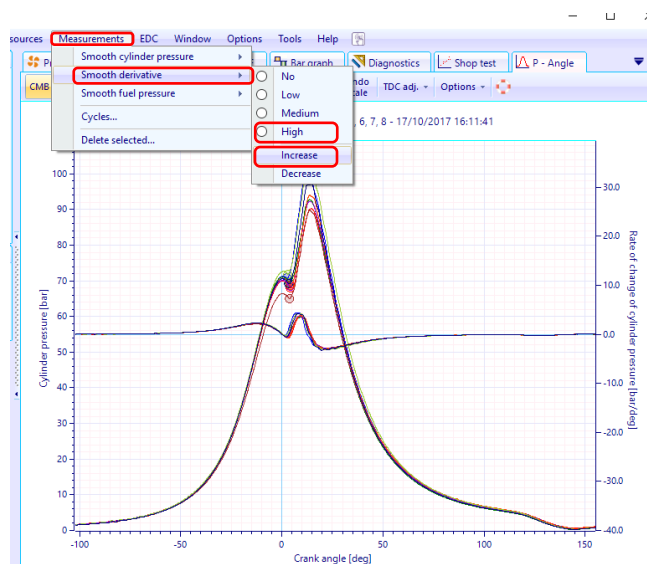- Or refer Quick Guide page 14 Chapt 3/4 and page 13 Chapt 3

1. First Step smooth derivative curves
   - ->1. select: measurement
   - ->2. select: Smooth derivative
   - ->3. select High
   - ->4. check the derivative curve on screen. If extrapolation lines arenot bundeld together please increase smoothing
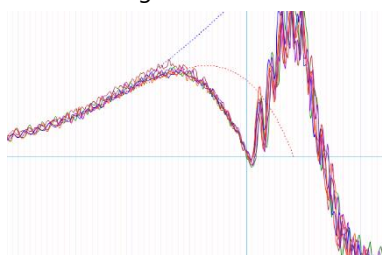
   - ->5. click on increase smoothing several times until extrapolation lines are bundled.

2. Adjust TDC
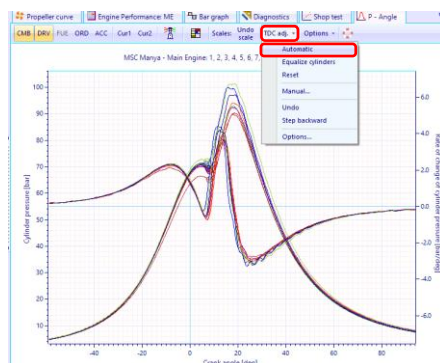
   ->click: TDC
   ->select: Automatic

   Curves automatically jump to the correct position as shown in the right picture.

Before

After