

# Instruction Manual

## New Functions

### Surfix® Pro X














## 4. Calibration (1st menu item)

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### 4.6 Combi-calibration

This calibration procedure combines zero setting and foil calibration in one single command. When selected you are prompted to perform a zero calibration and, without any further user interaction, a foil calibration. This procedure is useful for users who often use both calibration methods.

Procedure:

1.  press this key; *Calibration* appears on the display
2.  press this key; *Zero setting* appears on the display
3.  press this key four times; *Combi-calibration* appears on the screen
4.  press this key; *Place probe on "0"* appears on the display, and the ZERO symbol in the display begins to flash
5. place the probe repeatedly perpendicular to the uncoated surface of the test object
6.  press this key. *Zero has been set* appears briefly on the display. Thereafter *Place probe on foil standard* appears on the display and the CAL symbol in the display begins to flash.
7. Put the calibration foil on the uncoated test object and place the probe repeatedly on the foil
8.  press this key; *set standard value* appears on the display
9.   use the arrow keys to enter the calibration foil thickness as indicated on the standard
10.  press this key; *One-Foil-Calibration has been set* appears briefly on the display followed by the start screen with the four dashes – – – – . The CAL symbol is visible permanently.

You can now measure using zero calibration together with foil calibration.

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## 4.7 Deletion of calibration








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## 4.8 Set new probe zero

As you have read before, a normal zero calibration ( ) reduces measurement errors induced by surface geometry e.g. by curved surface or near edges. During zero calibration the gauge selects another calibration curve which fits better to the surface geometry. Zero calibration is not useful for compensating errors induced by wear or damage. In this case and if deviations are small the accuracy could probably be increased by a function "set new probe zero". This function determines a new zero value for ferrous or non-ferrous mode by positioning the probe on a (preferable new) PHYNIX zero plate.

Attention: This functions alters the properties of the probe; if you are in doubt contact your dealer or the manufacturer PHYNIX.

Procedure:

1.  press this key; *Calibration* appears on the display
2.  press this key; *Zero setting* appears on the display
3.  press this key; *Set new probe zero* appears on the display
4.  press this key; *Modify probe data?* appears on the display
5.  press this key, if you are sure to alter the probe properties. The ZERO symbol in the display begins to flash, and *Place probe on zero* appears on the display.  
place the probe repeatedly perpendicular to a (preferable new) zero plate; choose the zero plate type (Fe or Al) according to the measurement mode you want to improve.
7.  press this key, if you are sure; *Probe zero has been set* appears briefly on the display followed by the start screen with the four dashes ---- .
8.  if you are not sure, press this key to leave the calibration procedure; you will get back to the menu .

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## 4.9 Measurement

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## 6. Measuring mode (3rd menu item)

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### 6.5 SSPC PA2 mode

SSPC PA2 is a standard developed by the Society for Protective Coatings (SSPC) and describes a procedure for determining conformance to a specified coating dry film thickness on ferrous and non-ferrous metal substrates using nondestructive coating thickness gauges described in ASTM D 7091.







The SSPC PA2 mode is a convenient way to measure coating thickness according the SSPC standard. It can be selected under the menu item "Measuring mode". It is indicated by "PA2" in the display.

In fact SSPC PA2 mode is a kind of block value statistics, with a fixed block size of three values. During measurement all three values of the actual block are shown on the real time display. Additionally the moving average for this block and the mean value of all already completed blocks are shown.

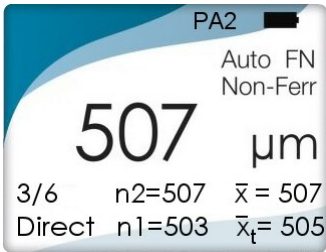
At the beginning of each block the first reading is displayed in the center of the display, after the second measurement the actual reading is displayed there, and the first reading moves one line down, indicated by  $n1$ . Finally after the third measurement the last reading is shown in the center, and the two readings before are shown below, indicated by  $n1$  and  $n2$ . On the right side of the display  $\bar{X}$  shows the moving average of the actual block, and  $\bar{X} \uparrow$  the mean value of all blocks.

#### 6.5.1 Activating the SSPC PA2 mode

Procedure:







-  press this key three times until *Measuring mode* appears on the display
-  press this key; *Autom. Detection FN, F, N* appears on the display
-  press this key twice; *SSPC PA2 mode* appears on the display
-  press this key; *SSPC PA2 mode deactivate* appears on the display
-  press this key; *SSPC PA2 mode activate* appears on the display.
-  press this key; *SSPC PA2 mode activated* appears on the display. As indicator the PA2 symbol appears on the display.

Now a kind of block value statistics with fixed block size of 3 is established. After the first measurement the display shows the coating thickness value with large numerals; after the second measurement this value moves to the next line, indicated with "n1". The second reading is shown as usual. After the last, third measurement the display shows the actual reading, the two former readings (indicated with "n1" and "n2"), the mean value of this block  $\bar{x}$ , and at least the mean value of all blocks with  $\bar{x}_t$ .



### 6.5.2 Deactivating the SSPC PA2 mode

Procedure:

1.  press this key three times until *Measuring mode* appears on the display
2.  press this key; *Autom. Detection FN, F, N* appears on the display
3.  press this key twice; *SSPC PA2 mode* appears on the display
4.  press this key; *SSPC PA2 mode activate* appears on the display
5.  press this key; *SSPC PA2 mode deactivate* appears on the display.
6.  press this key; *SSPC PA2 mode deactivated* appears on the display. The PA2 symbol disappears.

### 6.6 IMO PSPC mode

Measurements according the 90/10 practice refer to the "Performance Standard for Protective Coatings" developed by the International Maritime Organization (IMO).

In this standard the 90/10 practice is defined. It means that 90% of all thickness measurements shall be greater than or equal to a pre-defined nominal dry film thickness (NDFT) and none of the remaining 10% measurements shall be below 90% of NDFT.










The IMO PSPC 90/10 mode supports the user applying the 90/10 rule. It can be selected under the menu item "Measuring mode". This mode is indicated by "90/10" in the display.

In 90/10 mode the gauge determines after each measurement whether both conditions of the rule are fulfilled. In this case the display shows "GOOD". Otherwise if one or both conditions are not fulfilled it shows "FAILED". The procedure is as follows: After selection of the IMO PSPC 90/10 mode you first have to set the nominal dry film thickness by means of the arrow keys (setting) and the OK key (confirming). Subsequently the display shows five values: the NDFT and the number of readings greater than or equal to this value; the line below shows the thickness value ( $0.9 \times \text{NDFT}$ ) as well as the number of thickness values lying between ( $0.9 \times \text{NDFT}$ ) and NDFT. At the left side of the display the total number of readings N can be seen.

If only condition 1 (more than 10 % of readings are lower than NDFT) is not fulfilled it is still possible to achieve a "GOOD" measurement series. Therefore the number of readings higher than NDFT have to be increased. If condition 2 (none of the measurements should be below  $0.9 \times \text{NDFT}$ ) is not fulfilled it is no more possible to achieve a "GOOD" measurement series. You can recognize this situation if the total amount of readings (N; left side) is higher than the sum of both amounts (NDFT, 90%; right side).

### 6.6.1 Activating the IMO PSPC mode

Procedure:







-  press this key three times until *Measuring mode* appears on the display
-  press this key; *Autom. Detection FN, F, N* appears on the display
-  press this key once; *IMO PSPC 90/10 mode* appears on the display
-  press this key; *IMO PSPC 90/10 mode deactivate* appears on the display
-  press this key; *IMO PSPC 90/10 mode activate* appears on the display.
-  press this key; *Set nominal dry film thickness* appears on the display.
-   use these keys to adjust the nominal dry film thickness; with continued pressing of these keys the set value increases or decreases faster
-  press this key; *IMO PSPC 90/10 mode activated* appears briefly on the display followed by the start screen with the four dashes ----. As indicator the 90/10 symbol appears on the display. Also the nominal dry film thickness (ndft) as well as 90 % of ndft are shown.

Now a kind of limit function is established. After each measurement the display shows the nominal dry film thickness (ndfft) followed by the number of readings above this value; also the value "90 % of ndfft" is shown, followed by the number of readings below this value. On the left side of the display the total number of readings is shown. The result of the measurement series is shown above the reading: if both conditions are fulfilled, the display shows **GOOD**, otherwise **FAIL**.



### 6.6.2 Deactivating the IMO PSPC mode

Procedure:

1.  press this key three times until *Measuring mode* appears on the display
2.  press this key; *Autom. Detection FN, F, N* appears on the display
3.  press this key once; *IMO PSPC 90/10 mode* appears on the display
4.  press this key; *IMO PSPC 90/10 mode activate* appears on the display
5.  press this key; *IMO PSPC 90/10 mode deactivate* appears on the display.
6.  press this key; *IMO PSPC 90/10 mode deactivated* appears on the display. The 90/10 symbol disappears.

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## 9. Options






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### 9.7 Keylock

This function can help to prevent unintentional operation. After activation all keys (except Power On ) are locked until the ESC  key is pressed for 5 seconds.

#### 9.7.1 Activating the Keylock


Procedure:

1.  press this key twice; *Options* appears on the display
2.  press this key; *Switch-off mode* appears on the display
3.  press this key twice; *Keylock* appears on the display
4.  press this key; *Switch on keylock?* appears on the display
5.  press this key for confirmation; *To unlock press ESC key 5 sec.* appears briefly on the display, followed by the start screen with the four dashes ----.

Now the keylock is activated. No user interaction is possible, pressing a key will result in a double-beep. Only switch-off is possible, but it will not finish the keylock.

#### 9.7.2 Deactivating the Keylock

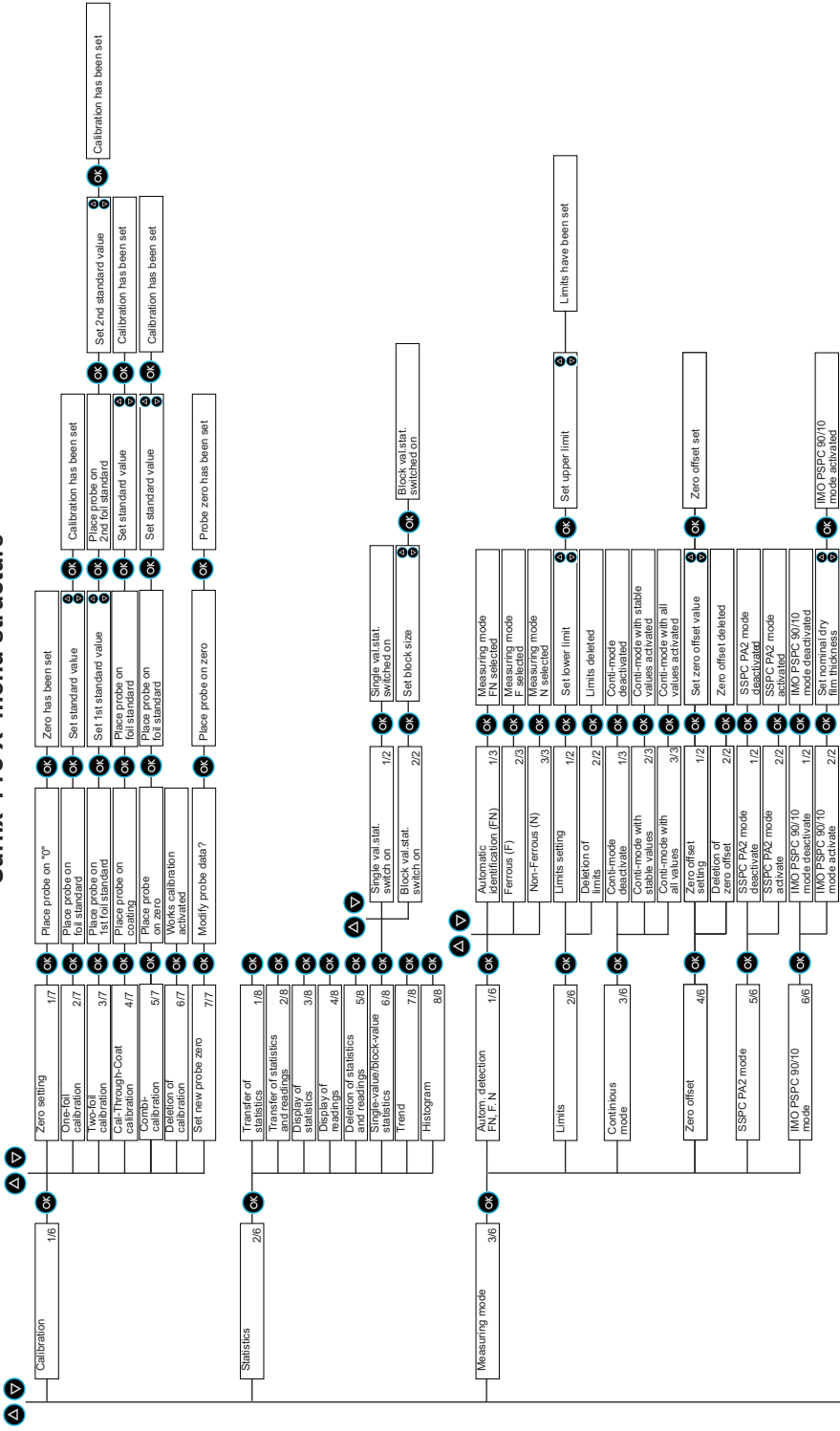
Procedure:

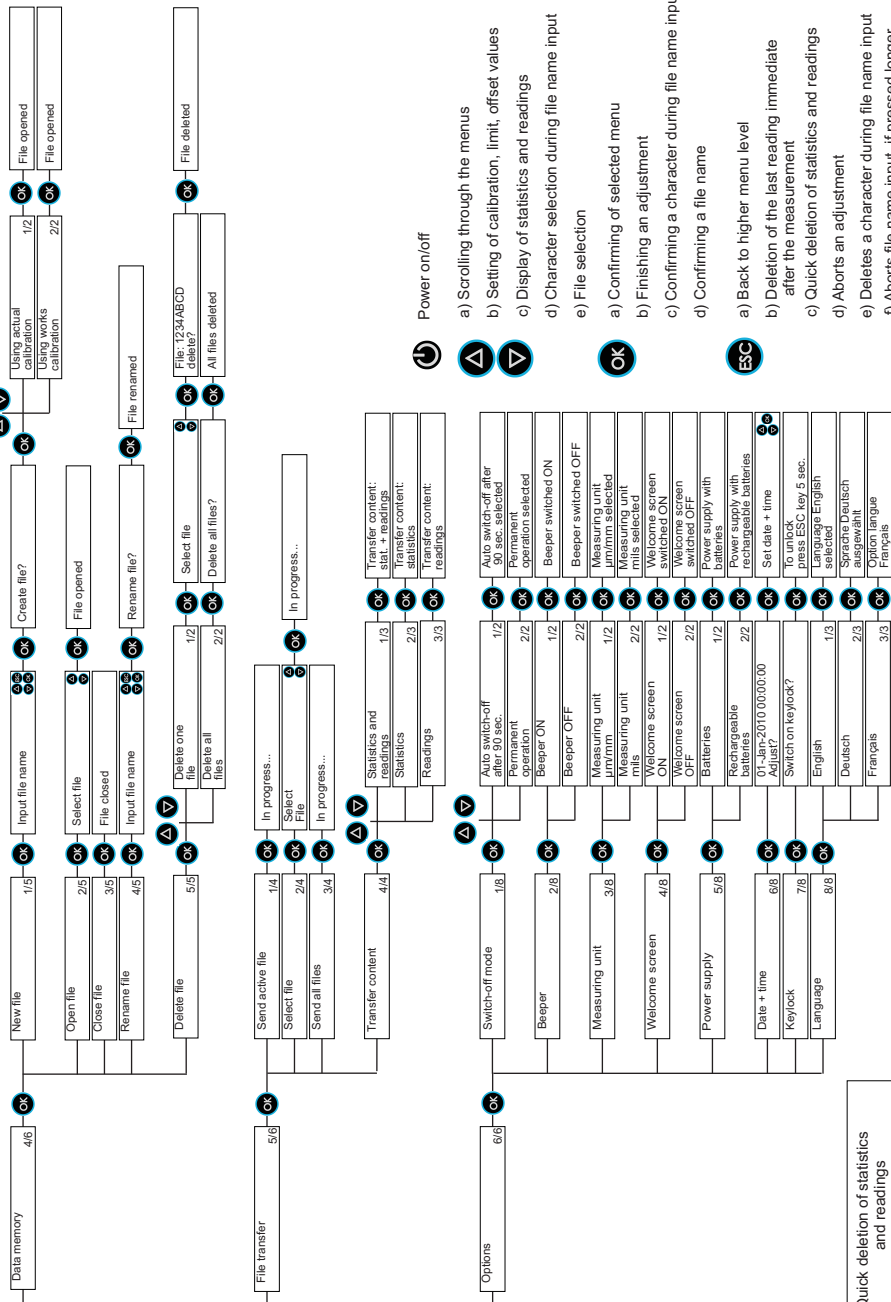
1.  press this key for appr. 5 seconds; a longer lasting beep will indicate the deactivation of the keylock.

## 9.8 Selecting the language

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# Surfix® Pro X menu structure





Power on/off

- a) Scrolling through the menus
- b) Setting of calibration, limit, offset values
- c) Display of statistics and readings
- d) Character selection during file name input
- e) File selection
- a) Confirming of selected menu
- b) Finishing an adjustment
- c) Confirming a character during file name input
- d) Confirming a file name
- a) Back to higher menu level
- b) Deletion of the last reading immediate after the measurement
- c) Quick deletion of statistics and readings
- d) Aborts an adjustment
- e) Deletes a character during file name input
- f) Aborts file name input, if pressed longer than 2 sec.
- g) Aborts key lock, if pressed longer than 5 sec.

Quick deletion of statistics and readings

1. ESC until "..."
2. ESC
3. OK

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