Installation Manual
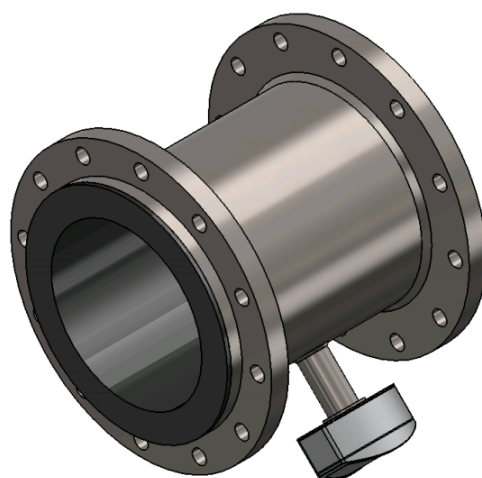# Инструкция по установке

SLURRY DENSITY ANALYSER
плотности суспензий

Doc No: KWR-7QA03-921-20220321-EN-RU

CONTENT

Preface / ПРЕДИСЛОВИЕ

Symbols and conventions / Символы и условные обозначения

	Caution! This sign indicates that failure to follow directions could result in damage to the equipment or loss of information. Внимание! Этот знак указывает на то, что несоблюдение указаний может привести к повреждению оборудования или потере информации.
	Warning! This sign indicates that failure to follow directions in the warning could result in bodily harm. Предупреждение! Этот знак указывает на то, что несоблюдение указаний в предупреждении может привести к телесным повреждениям.
	Important! This word indicates that the text that follows contains clarifying information or specific instructions. Важный! Это слово означает, что следующий текст содержит уточняющую информацию или конкретные инструкции.

## STEP 1. ANALYSER Installation / ШАГ 1. АНАЛИЗАТОР Установка

1.1 Mounting locations / Монтажные площадки

For IP66 built analyser inside canopy
Для IP66 встроенный анализатор внутри навеса

Temperature температура	Operating: 0-50 degC; Storage: -10ºC to +60ºC
	Операционная: 0-50 degC; место хранения -10ºC to +60ºC
Relative humidity	10-90% (non condensing)

### 1.2 Mounting angle / Угол монтажа
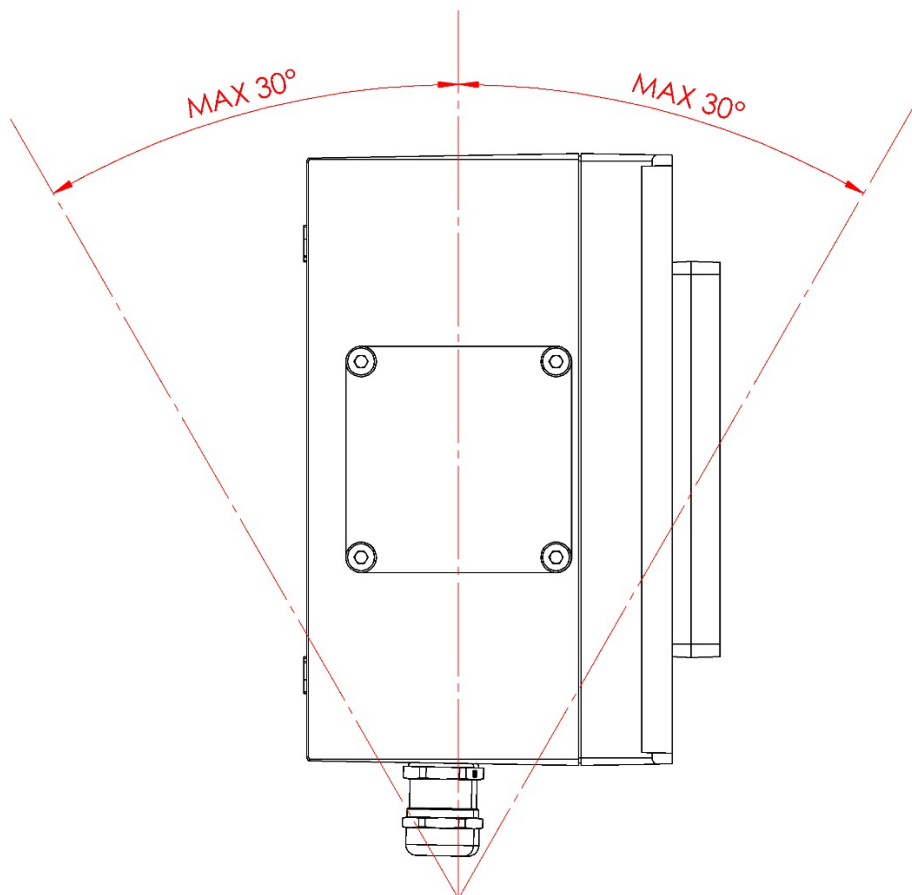
1.3 Mounting to the wall / Монтаж на стену

Remove the aluminum plates to mount the analyser to the wall
Use the "4-Mounting set" screws and bolts to mount the analyser to the wall

Снимите алюминиевые пластины, чтобы установить анализатор на стену
Используйте винты и болты «4-монтажного комплекта» для установки анализатора
на стену

1.4 Electrical cables installation / Установка электрических кабелей
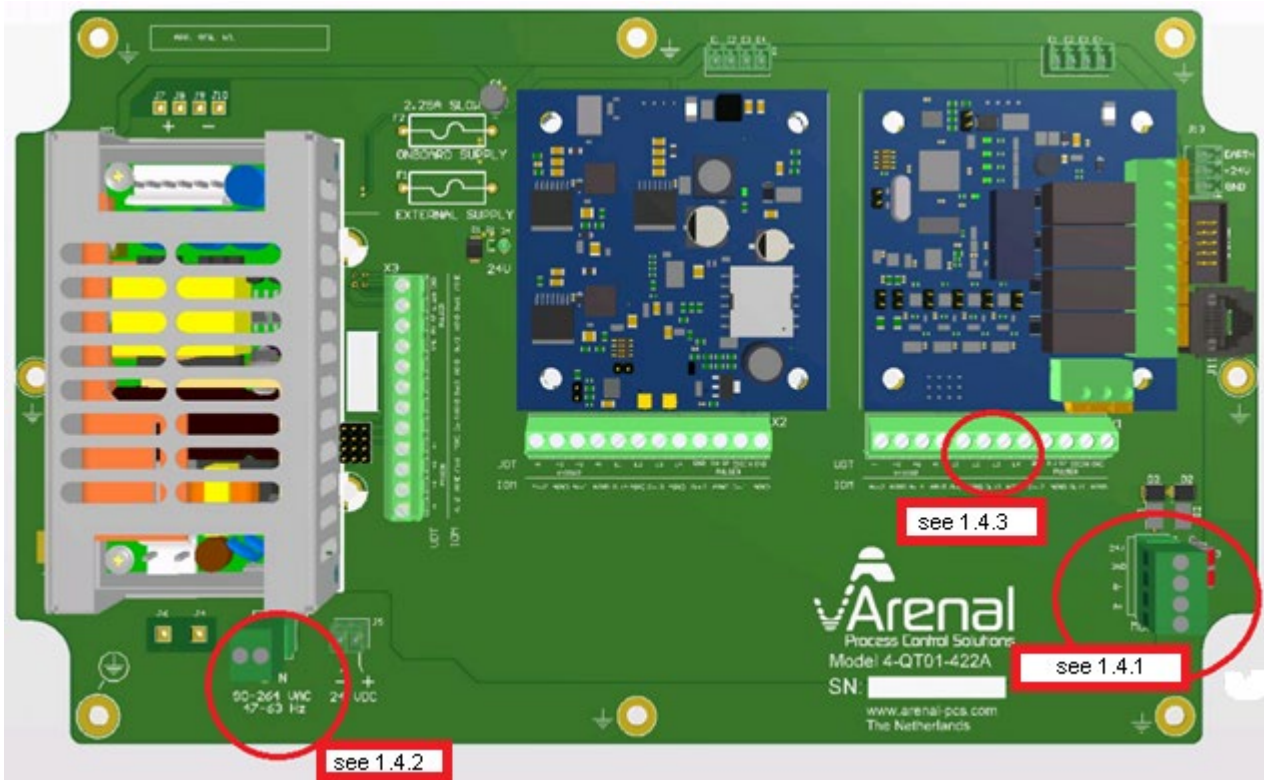
1.4.1 To connect the UDT to the analyser / Подключение UDT к анализатору

Name in Analyser Имя в Analyzer	Name in UDT Имя в UDT	Explanation объяснение	Wire numbers номера проводов	Wire Colour цвет провода
24VDC	24VDC	24Vdc +	1	Brown / коричневый
GND	0VDC	0 Vdc	2	White / белый
B-	B-	Modbus RTU	3	Green / зеленый
A+	A+	Modbus RTU	4	Yellow / желтый
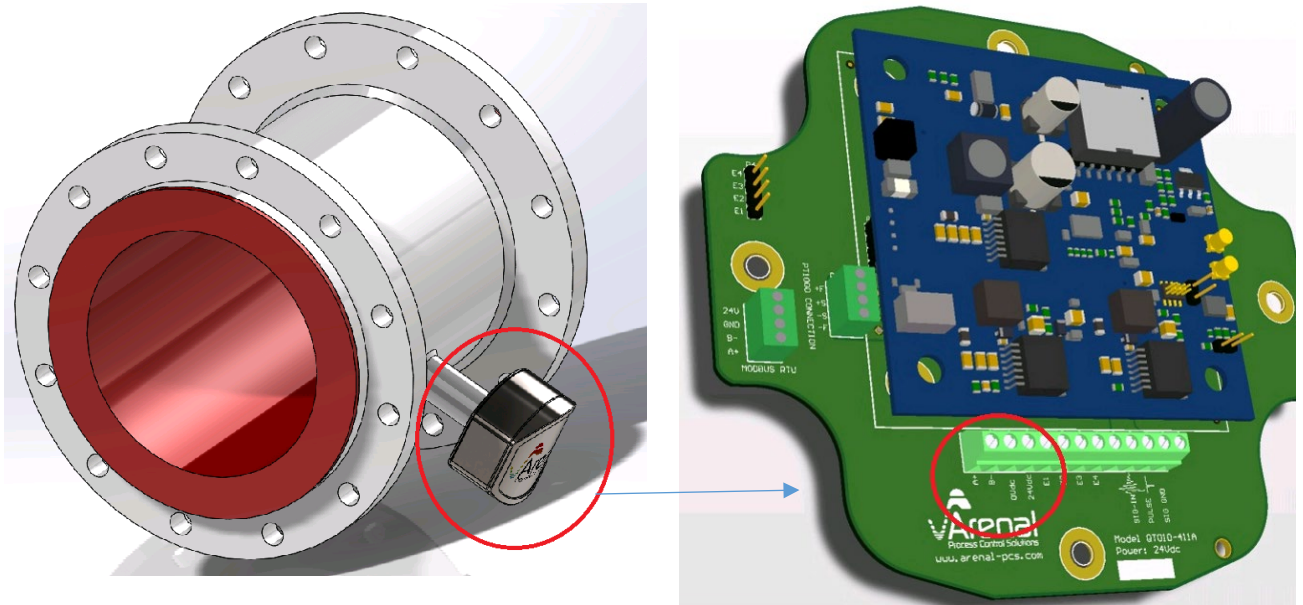
1.4.2 *Power supply* of the QA03-SDA / Источник питания

90-263 Vac 50-60 Hz
L N

1.4.3 mA wiring output / сигналы мА

On LT4301TADAC display	Parameter	Terminal on HMI	Colour
E1 – mA-1 common ground- / Заземление E2 – mA-1 + E3 – mA-2 common ground / Заземление E4 – mA-2 +	SG Temperature	D14 C15 D14 D15	Yellow Green White Brown

On QM132-IOM Module	Parameter	Terminal on QM132	
mA-1 common ground- / Заземление mA-1 + mA-2 common ground / Заземление mA-2 +	SG Temperature	25) Aout1 GND 26) Aout 1+ 23) Aout2 GND 24) Aout 2+	

1.4.4 mA wiring input / сигналы мА

On LT4301TADAC display	Terminal on HMI
4-20 mA input +	D13 AND C12 (connect them together)
4-20 mA input -	D12

On QM132-IOM Module	Terminal on QM132
4-20 mA input 1+	1) Ain1+
4-20 mA input 1-	2) Ain1 GND
4-20 mA input 2+	3) Ain2+
4-20 mA input 2-	4) Ain2 GND

1.4.5 Open collector outputs

The 6 open collector outputs can be programmed to suit your application in process control. Currently three collector outputs have been used. As a standard these are set to be sourced outputs (positive logic). Pre-wiring all these outputs will give the following schedule:

Wire	Terminal on HMI
24Vdc+	A3 ("V1+")
24Vdc GND	B3 ("V1-")
Output (24V)	B4 ("Q2") SG value is lower than the low alarm value
Output (24V)	A4 ("Q3") SG value is higher than the high alarm level
Pulse (24V)	B5 ("Q4") Solids Production pulse per ton
Output (24V)	A5 ("Q5") Analyzer fault
Free	B6 ("Q6")
Free	A6 ("Q7")

Below is a description of each open collector:

SG value is lower than the low alarm value
This open collector output will give a positive constant voltage when the SG is lower than the low alarm level. This voltage can be used to switch a relay contact that switches a valve or pump.
The output can be powered by the internal power on the main board. Add a second fuse after the power convertor to the 24Vdc connector on the left bottom and wire this to the below mentioned terminals on top of the HMI.

Wire	Terminal on HMI	Terminal on QM132
24Vdc+	A3 ("V1+")	Not yet available
24Vdc GND	B3 ("V1-")	
Output (24V)	B4 ("Q2")	

SG value is higher than the high alarm level
The open collector output #3 will give a positive constant voltage when the SG is higher than the high alarm level. This voltage can be used to switch a relay contact that switches a valve or pump.

The output can be powered by the internal power on the main board. Add a second fuse after the power convertor to the 24Vdc connector on the left bottom and wire this to the below mentioned terminals on top of the HMI.

Wire	Terminal on HMI	Terminal on QM132
24Vdc+	A3 ("V1+")	Not yet available
24Vdc GND	B3 ("V1-")	
Output (24V)	A4 ("Q3")	

Solids Production pulse
This open collector output will give a positive pulse when 1 ton solids is produced.
This is only the case when the production shift is started.
When the production shift is started and the analyzer is restarted, the shift is started again, but the totals are reset to 0.
The output can be powered by the internal power on the main board. Add a second fuse after the power convertor to the 24Vdc connector on the left bottom and wire this to the below mentioned terminals on top of the HMI.
Set the pulse duration in steps of 10 ms in the IO Module settings, Digital IN/OUT.

Wire	Terminal on HMI	Terminal on QM132	
24Vdc+	A3 ("V1+")	D1-2out COM	
24Vdc GND	B3 ("V1-")	D1-2out GND	
Pulse (24V)	B5 ("Q4")	Dout1	

Analyzer fault
This open collector output will give a positive constant voltage when the analyzer is in fault mode. A fault mode is triggered when a measurement is not possible anymore. In general this is the case when the analyzer cannot communicate with the transmitters. This voltage can be used to switch a relay contact that switches a valve or pump.
The output can be powered by the internal power on the main board. Add a second fuse after the power convertor to the 24Vdc connector on the left bottom and wire this to the below mentioned terminals on top of the HMI.

Wire	Terminal on HMI	Terminal on QM132
24Vdc+	A3 ("V1+")	D1-2out COM
24Vdc GND	B3 ("V1-")	D1-2out GND
Output (24V)	A5 ("Q5")	Dout2

1.4.6 Open collector inputs

The 6 open collector inputs can be programmed to suit your application in process control. Currently one collector input is used. As a standard these are set to be sourced inputs (positive logic). Pre-wiring all these outputs will give the following schedule:

| Wire	Terminal on HMI
24Vdc+	Connect + to positive side of your switch. Protect by fuse.
24Vdc GND	D3 (IC1)
Free	D2 (i2)
Input switch	C3 (I3) Negative side of your switch. Take a sample of the process by pressing this button for 0,5-9 secs. After 10 seconds, you can press again to indicate that sampling stopped. Logging file contains of ID of sample.
Free	D4 (i4)
Free	C4 (i5)
Free	D5 (i6)
Free	C5 (i7)

STEP 2. Spool piece/wafer Installation / ШАГ 2. АНАЛИЗАТОР Установка

2.1 Mounting position / Монтажное положение

a. *In vertical pipe, mounting position is not relevant*

В вертикальной трубе монтажное положение не имеет значения

b. *In horizontal pipe, mounting position must be as in the picture:*

В горизонтальной трубе монтажное положение должно быть таким, как на рисунке:
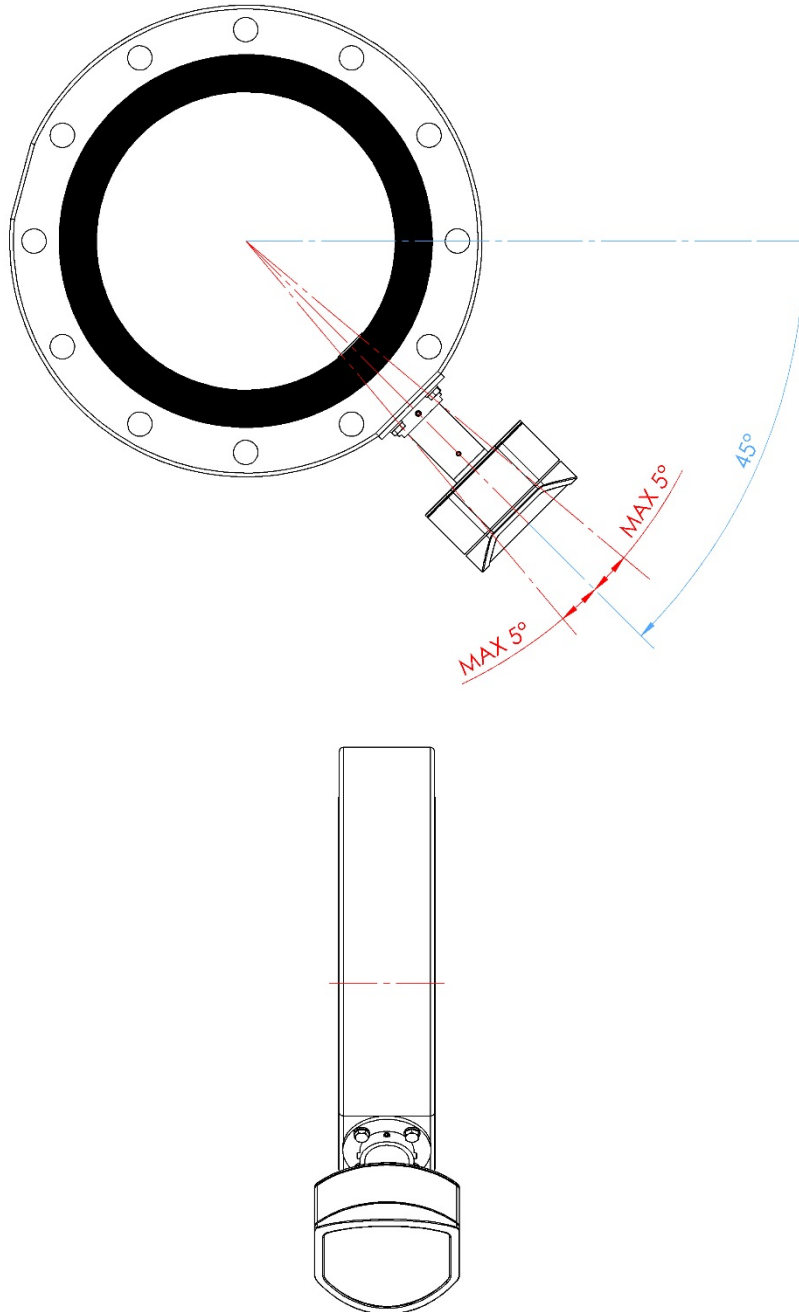
2.2 mounting location / место установки

a. *Mounting 7x diameter after last obstruction and 5x diameter before next obstruction (pump, bend, narrowing, valve)*

Монтаж диаметром 7x после последней обструкции и 5-кратным диаметром перед следующим препятствием (насос, изгиб, сужение, клапан)

STEP 3. Start up

Start up and commissioning by unauthaurised personnel is at own risk.
During start up, when the mA outputs are not connected,an error code is shown. Simply press the X to remove the error and it won't show up anymore.

STEP 4. Correcting mA outputs
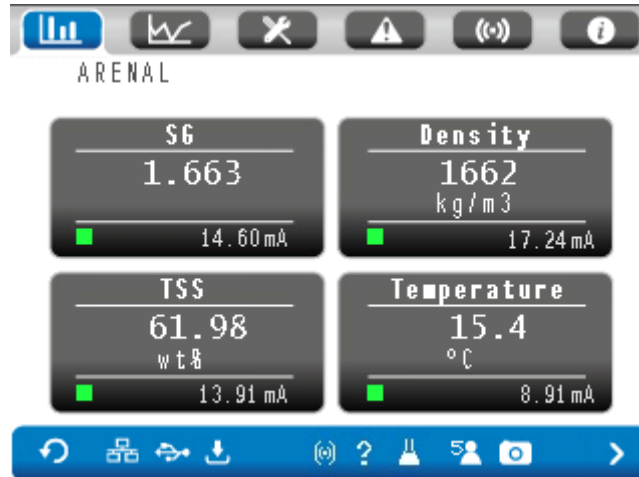
a) The mA output of the SG and the Density is not the same. To get these the same, follow below instructions.

b) Press the SG box in above picture, the following menu will open with a prompt for a level 2 User ID and Password code in order to gain access.

c) A tap on the User ID block will open the keypad. Type **EL as the user ID** and press enter.
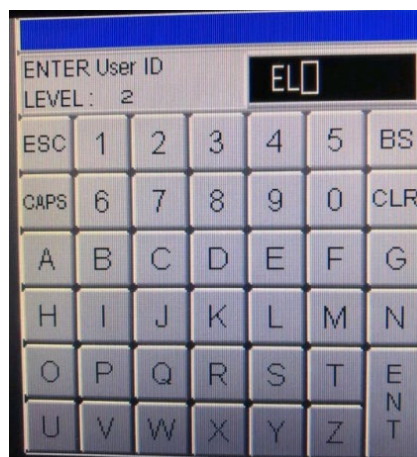
d) The keypad will open again for the password. **Type 07AF as the password** and press enter, which will then take you back to the level 2 menu as above, but now indicating both the user ID (EL) and the password as ****.
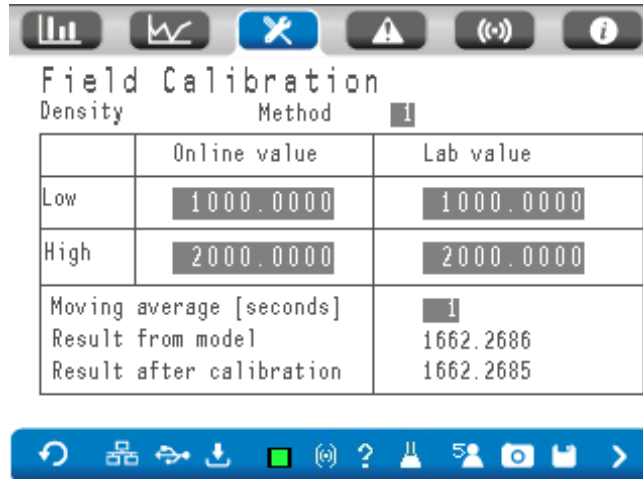
e) Press OK, which will then open the Field Calibration menu below. Press > to go to the DO and AO settings:
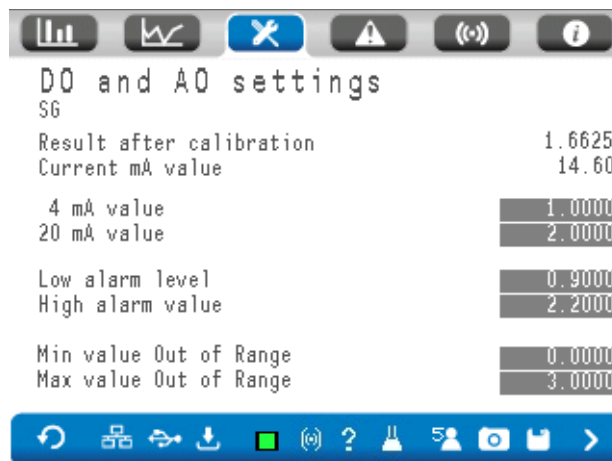
f) Note that the range of 4-20 mA for the SG is here: 1..2 SG. And that the current mA output is 14,60. Now, go back to the main screen:
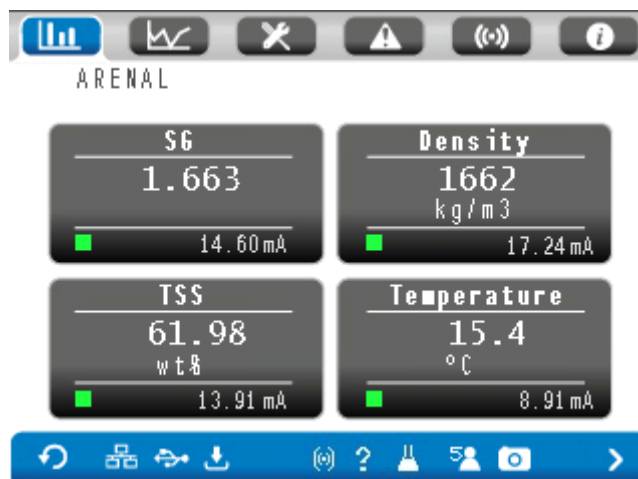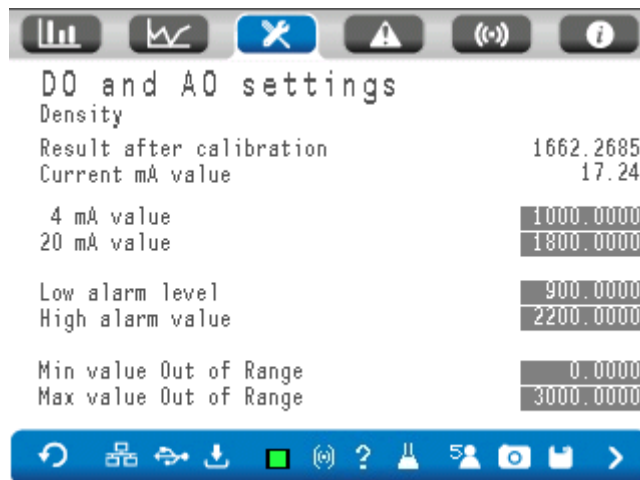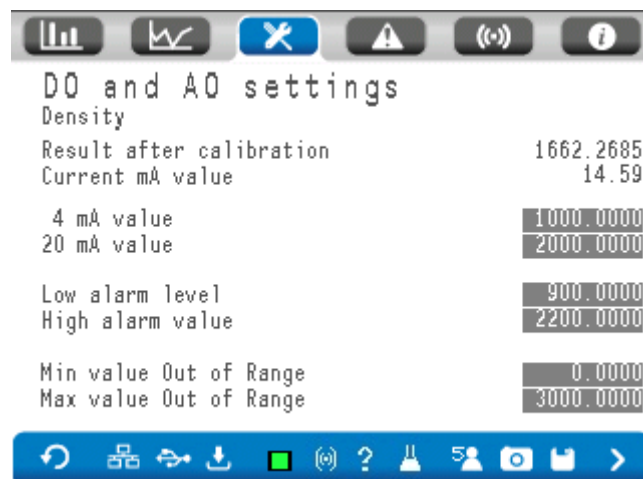
g) Press DENSITY

h) Make sure all settings are as above. Then Press > to go to following screen.

i) The 4-20 mA value is 17,24 because the range is here 1000..1800 (while SG was 1..2). Change as follows:

j) Press save. The next screen will be shown:

ARENAL

SG	Density
1.663	1662 kg/m3
14.60 mA	14.59 mA

TSS	Temperature
61.98 wt%	15.4 °C
13.91 mA	8.91 mA