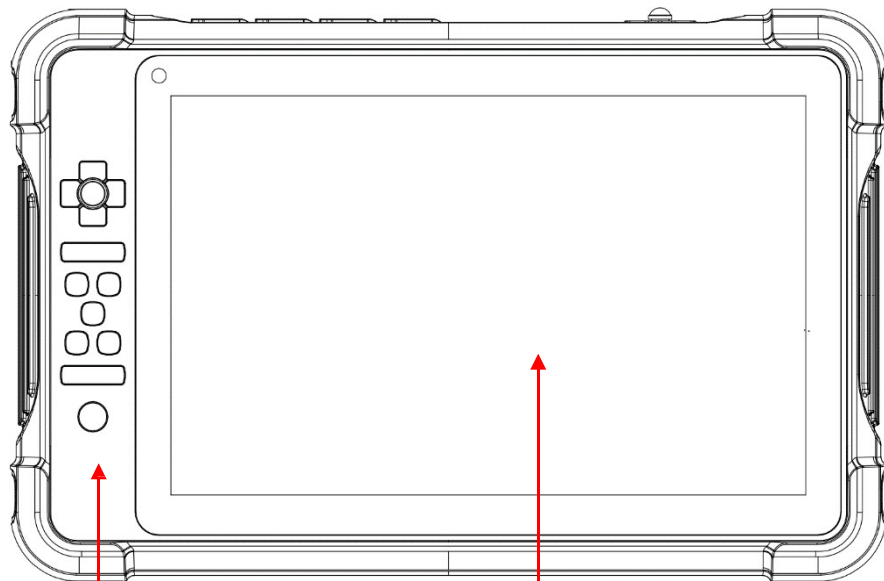


# 1 Introduction

This chapter gives a general introduction to the Microlog dBX. It provides an overview of the layout, keypad, connectors, and other hardware features. Detail of the individual operation of each function will be described in later chapters

## 1.1 Layout of the Microlog dBX™

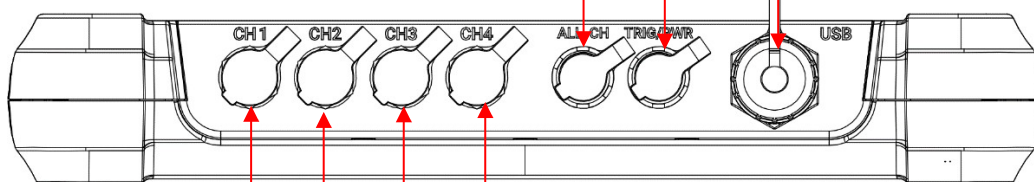
### Front view



- Keypad
- 10" Color LCD touch screen

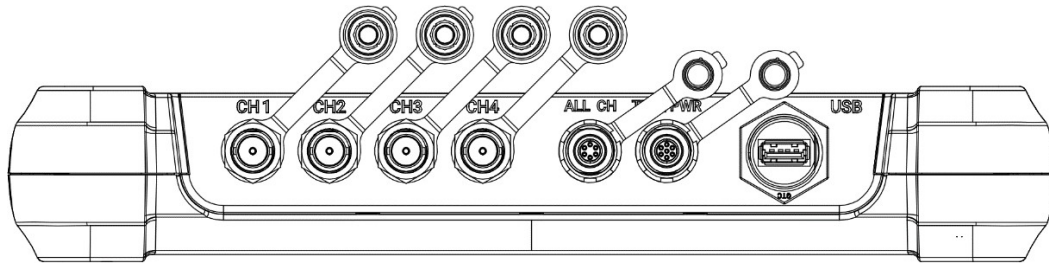
### Top View

- USB connector
- Trigger and power connector
- All channel connector



- BNC connector Ch1~Ch4

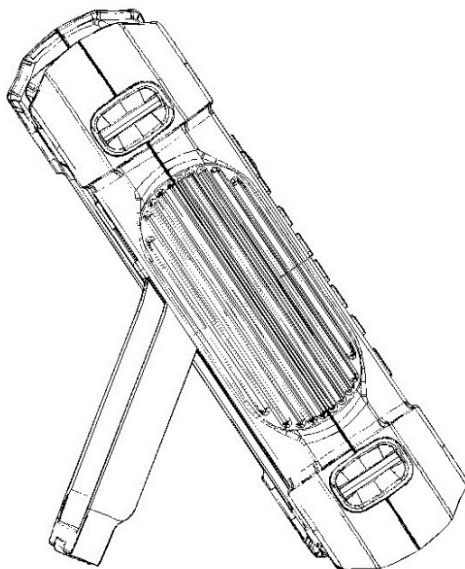
Remove the connector caps before using the connectors (See the figure below).



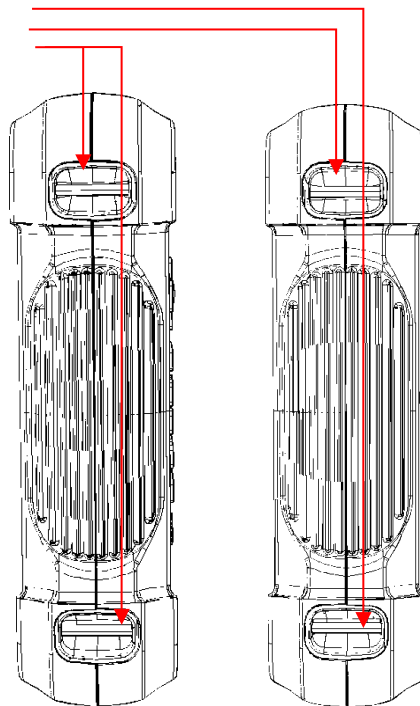
After removing the BNC connector caps, you can see the 4 BNC connectors, they are channel 1, channel 2, channel 3 and channel 4 respectively. The BNC connectors provide convenient sensor connection when you need to connect 4 separate sensors to your Microlog dBX.

## Side view

Hand strap and shoulder strap holders



Side view with stand open



Left side

Right side

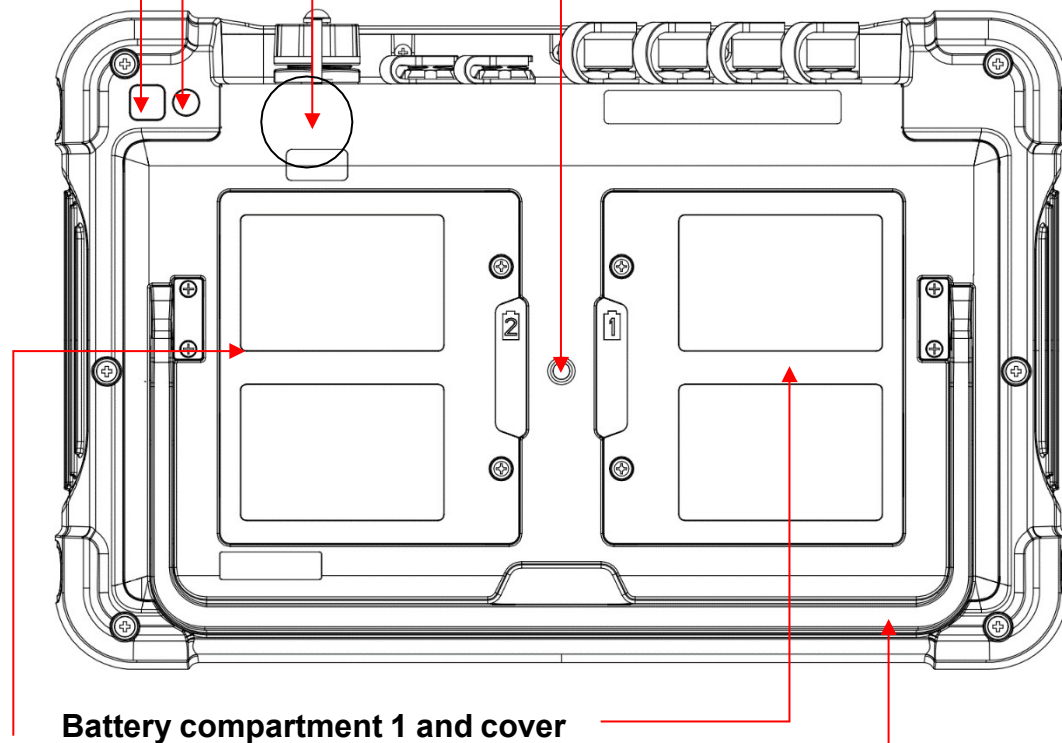
## Rear view

RFID Reader

LED Flash

Camera

Screw hole for Tripod



Battery compartment 1 and cover

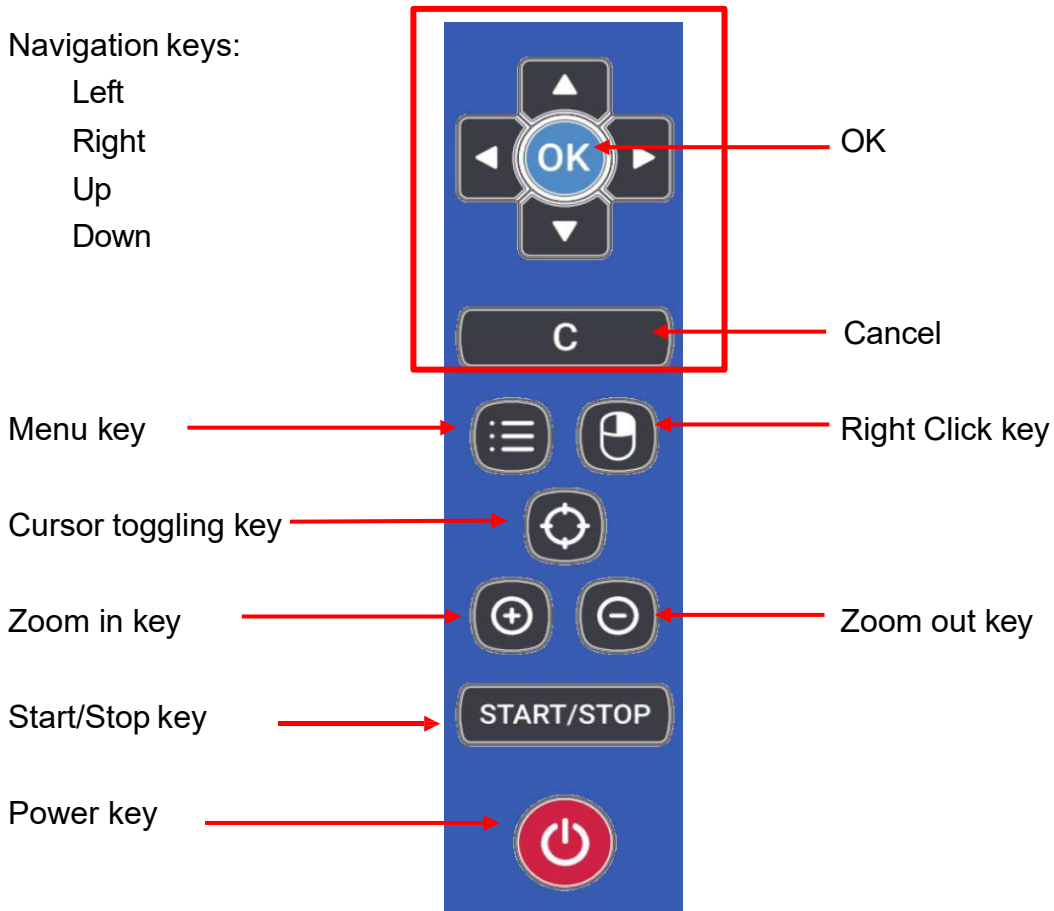
Battery compartment 2 and cover

Foldable stand

## 1.2 Keypad

Navigation keys:

Left  
Right  
Up  
Down

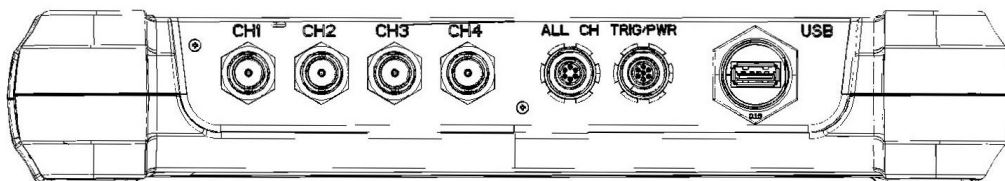


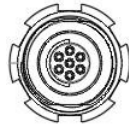
- Navigation keys – Use these keys to move a focus or a cursor in the following occasions:
  - Move a cursor to left or right
  - Move the focus in a list of options
  - Select an active window
- OK key – Use this key for the following operations:
  - Enter or confirm a selection
  - Call out the trace setup menu
- Cancel Key – Use this key for the following operations:
  - Escape or abort from a menu
  - Backspace when entering a string
  - Enable active window selection when multiple plots are displayed
  - Toggle different cursor options
- Zoom in key – Zoom in a plot or user define

- Zoom out key – Zoom out a plot or user define
- Cursor key – Change type of cursor or user define
- Menu key – Move the focus to the main menu
  - Press Menu key repeatedly and toggle to the selected menu
  - Use Up and Down key to select an option from the selected menu
- Start/Stop key – Use this key to start or stop a measurement.
- Power key – use this key to turn the instrument on or off.
  - When the instrument is off, press it once to turn on the power
  - When the instrument is on, press it once to turn on or turn off the screen.
  - When the instrument is on, press and hold for 3 seconds to enter the shutdown procedure
  - When the instrument is on, press and hold for 10 seconds to conduct a “force shutdown”, which means the power just cuts without a proper shutdown procedure. Conduct a force shutdown only when you have a problem conducting normal shutdown.
- Power key backlight color - The power key backlight colors indicate different situations of the power system:
  - No backlight: The power is off.
  - Red: Power is off, and the batteries are charging.
  - Blue: Power is on, and the batteries are not charging.'
  - Purple: Power is on, and the batteries are charging.

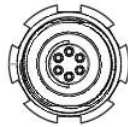
## 1.3 Connectors

On top of the Microlog dBX is a series of connectors to provide an interface to accept external signals (usually from your sensors), power supply or to output communications with external devices like a computer.

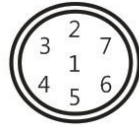




TRIG/PWR



All CH



DBPE 103A-057-130

TRIG/PWR

1. EXT-DC-IN

2. NC

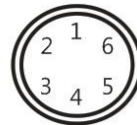
3. NC

4. Digital Gnd

5. EXT-TRIG-AUX

6. NC

7. +5V-Tacho-Out



DBPE 103A-056-130

Analog In

1. CHANNEL 1

2. CHANNEL 2

3. NC

4. CHANNEL 4

5. Analog Gnd

6 CHANNEL 3

Fischer (FISCHER DBPE 103A-057-130)

(FISCHER DBPE 103A-056-130)

Compatible (FG8.1F1C.P07KS) (FG8.1F1C.P06KS)

**CH1:** BNC connector for the Analog input channel 1, AC/DC/ICP coupling

**CH2:** BNC connector for the Analog input channel 2, AC/DC/ICP coupling

**CH3:** BNC connector for the Analog input channel 3, AC/DC/ICP coupling

**CH4:** BNC connector for the Analog input channel 4, AC/DC/ICP coupling

**All CH:** 6 pin Fischer connector connecting to CH 1, 2, 3 and 4.

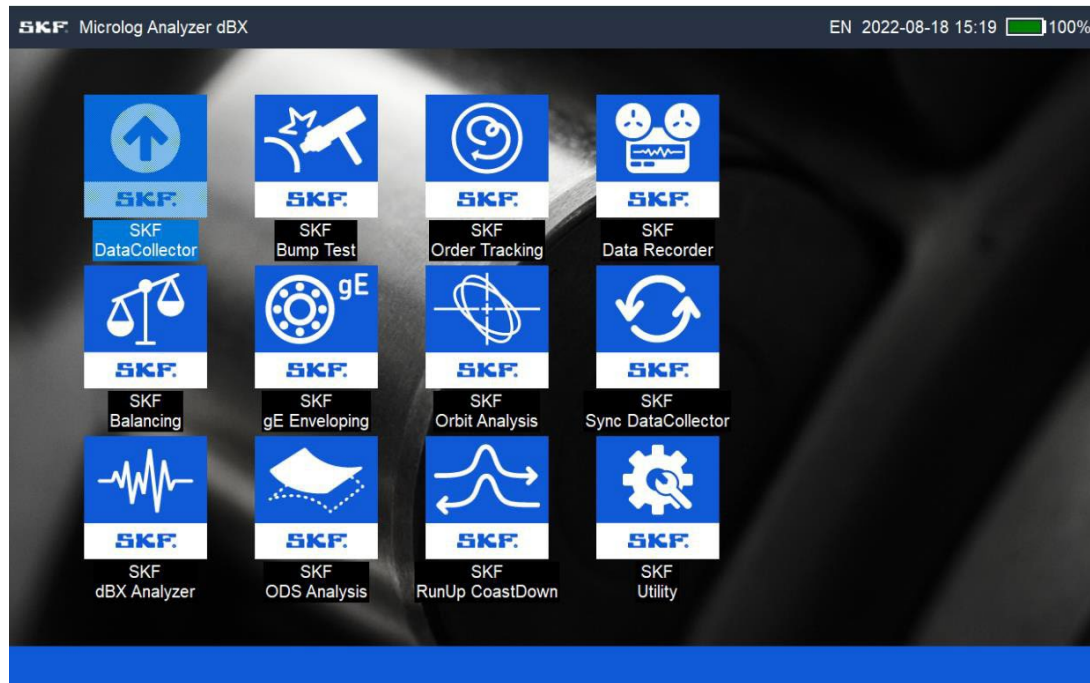
**TRIG/PWR:** 7 pin Fischer connector for connecting to an external triggering source (usually a tachometer). This connector is also used for power supply.

**USB:** type A USB socket, providing a USB 3.1 connection to external devices.

Note: ICP® is a registered trademark of PCB Piezotronics Europe GmbH in Germany and other countries.

## 1.4 Turning On

Press Power key to turn on your Microlog dBX. It takes several seconds to load the operational system, and then the instrument will show you the main display as follows.



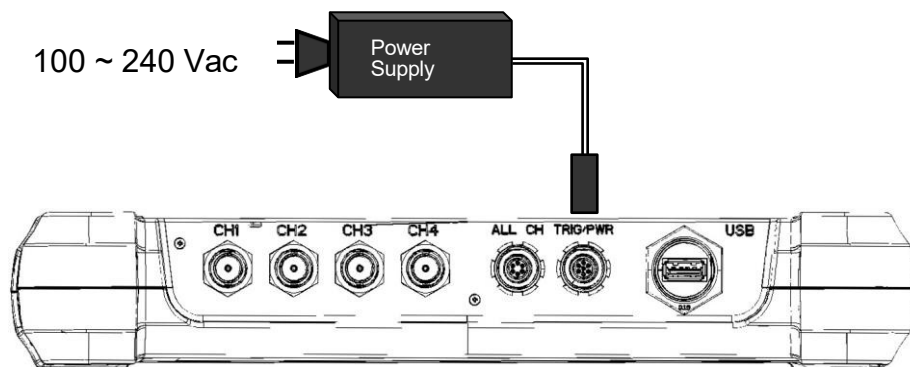
Your display will show the icons of programs installed. You may have several programs shown depending on what was purchased. At the top right corner, you can see the clock and the battery power gage.

To run a program, move the focus to the program icon with navigation keys, and press OK key to run it. You can also run a program by double tapping the icon with your finger.

## 1.5 Charging the battery

The Microlog dBX is designed to run continuously for 8 to 10 hours with a pair of fully charged batteries. When you turn on your Microlog dBX, you can see the condition of the battery power gage at the top right corner of the screen.

To charge your Microlog dBX, plug the connector of power supply to the 7-pin connector (TRIG/PWR) of Microlog dBX. The power supply unit accepts 100 ~ 200 V AC power. During the charging process, if you turn on the instrument, you'll see that the battery power gage scrolling. It is normal that the casing of the instrument gets a little bit warmer during charging.



You can extend the operational hour in the field by replacing the battery with a backup one. Besides, if you plan to use the instrument within 4 hours, you can use only one battery to reduce the weight.



Li-ion



**Handle battery packs carefully**

This product contains a Li-ion battery. There is a risk of fire and burns if the battery pack is handled improperly. Do not attempt to open or service the battery pack. Do not disassemble, crush, puncture, short external contacts, or circuits, dispose of in fire or water, or expose a battery pack to temperatures higher than 60°C (140°F).

## 1.6 Specification

|                        |                                                                                                                                                                                                                                                                                                                                           |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimension              | 300 x 190 x 50 mm                                                                                                                                                                                                                                                                                                                         |
| Screen                 | Multi-point color touch screen, 10.1", 1280x800                                                                                                                                                                                                                                                                                           |
| Weight                 | 1.95 kg                                                                                                                                                                                                                                                                                                                                   |
| Enclosure              | Dual material mold injection, soft TPI material and hard ABS material                                                                                                                                                                                                                                                                     |
| Temperature ratings    | <ul style="list-style-type: none"> <li>• Operating temperature: –10 to +50 °C</li> <li>• Charge temperature: 10 to 45 °C</li> <li>• Over/under temperature charging protection: <ul style="list-style-type: none"> <li>– High: 50 +/- 3°C</li> <li>– Low: 3 +/- 3°C</li> </ul> </li> <li>• Storage temperature: – 20 to +60 °C</li> </ul> |
| Inputs channels        | <ul style="list-style-type: none"> <li>• 4 analogue input channels with ICP power supply</li> <li>• Tacho channel with built-in power supply to a laser tachometer</li> </ul>                                                                                                                                                             |
| Data acquisition       | 24-bit Sigma Delta A/D converters                                                                                                                                                                                                                                                                                                         |
| Accuracy               | ±2.5%                                                                                                                                                                                                                                                                                                                                     |
| Max bandwidth          | 40 kHz (102.4kHz sampling rate)                                                                                                                                                                                                                                                                                                           |
| Input ranges           | +/- 5 Volt, +/- 20 Volt                                                                                                                                                                                                                                                                                                                   |
| Wireless Communication | NFC                                                                                                                                                                                                                                                                                                                                       |
| Data storage           | 256 GB flash memory                                                                                                                                                                                                                                                                                                                       |
| Operating System       | Windows 10 IOT Enterprise                                                                                                                                                                                                                                                                                                                 |
| Connector Style        | 6 pin Fischer and BNC on 4 Input Channels, 7 pin Fischer on power supply and external trigger input                                                                                                                                                                                                                                       |
| Channel Coupling       | AC, DC, ICP                                                                                                                                                                                                                                                                                                                               |
| Tacho Channel          | from external trigger                                                                                                                                                                                                                                                                                                                     |
| CPU                    | Intel Atom N4200                                                                                                                                                                                                                                                                                                                          |
| Internal Memory        | 8 GB                                                                                                                                                                                                                                                                                                                                      |
| Batteries              | Swappable Li-Lithium battery x2, 14.4V, 2270mAh, 32.7W                                                                                                                                                                                                                                                                                    |
| PC Interface           | USB 3.1 A type USB Connector                                                                                                                                                                                                                                                                                                              |

## 1.7 Regulatory Information

### **FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

### **CAUTION:**

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **RF Exposure Information (SAR)**

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of [www.fcc.gov](http://www.fcc.gov) after searching on FCC ID: 2A8TK-9260NGW

To ensure that RF exposure levels remain at or below the tested levels, use a belt-clip, holster, or similar accessory that maintains a minimum separation distance of 5mm between your body and the device.

## 2 Utility Program

Run the utility program from the main display of Microlog dBX. This program allows you to review the system information and programs installed on this instrument, test the data acquisition hardware, and set up the system parameters.

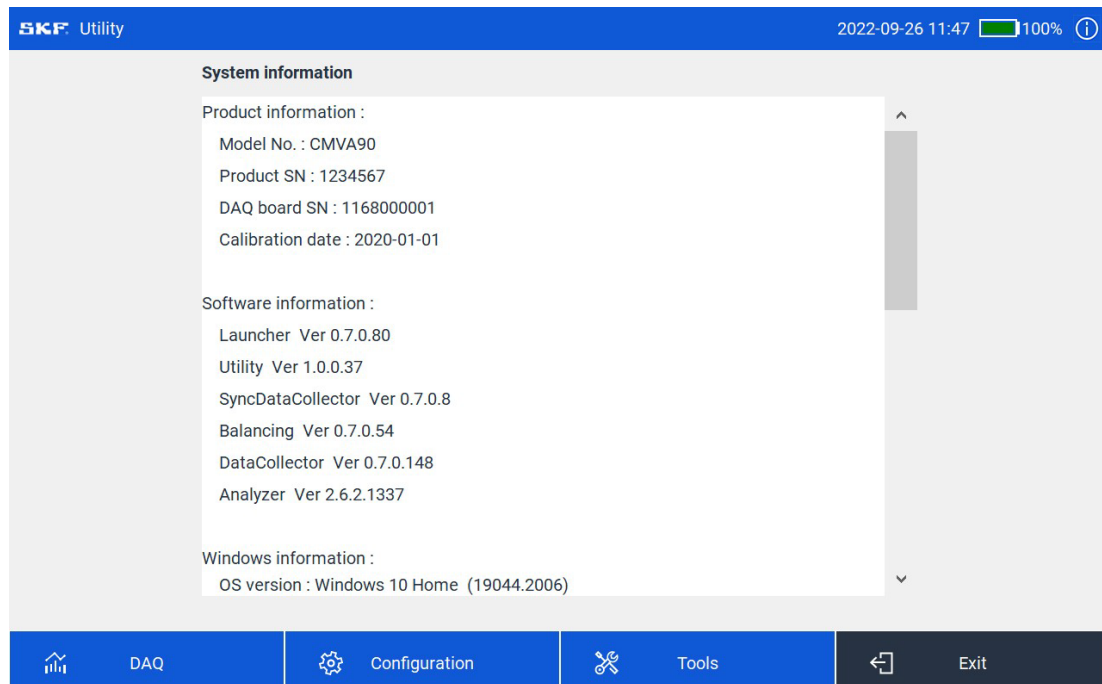


### 2.1 System information

After running the Utility program, you'll see the system information from the main display.

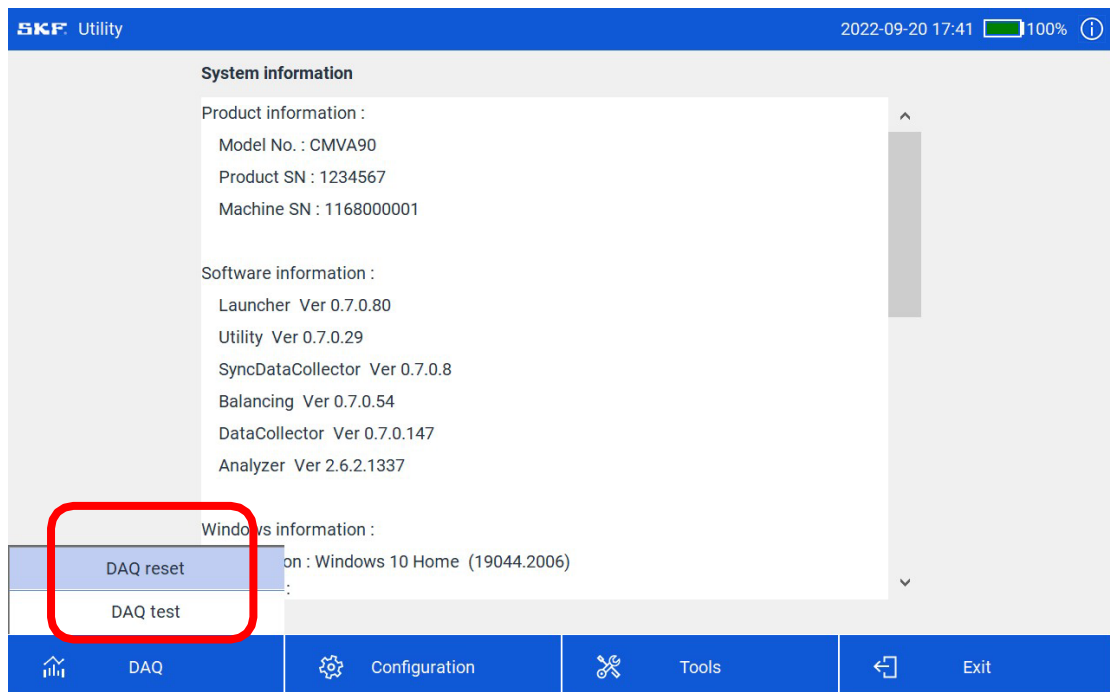
The displayed information includes Product information, Windows information, ADC Resolution, Maximum fs, etc.

Several different functions can be performed through the buttons below: EXIT, DAQ Menu, Sync Mode, and Preference.



## 2.2 DAQ Menu

Select the DAQ button from the main menu to enter the DAQ display. In this page you can conduct testing on the instrument's data acquisition hardware or reset the hardware when necessary.



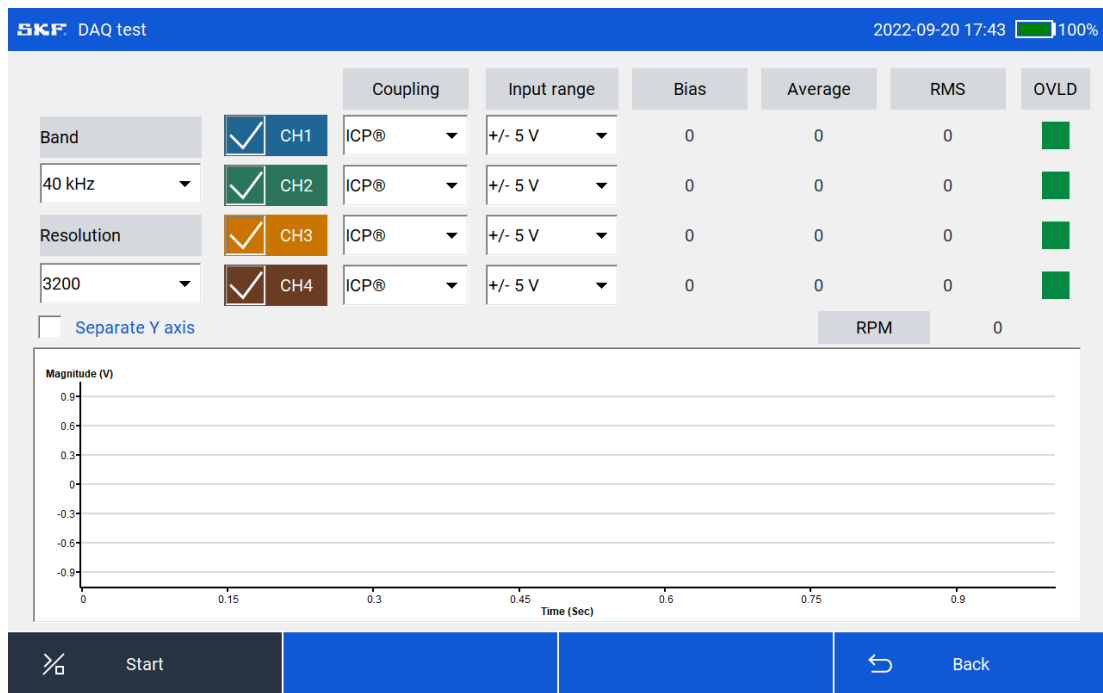
### Reset

Select the Reset option will disconnect and reconnect the data acquisition hardware (DAQ) via the GPIO device inside. You can conduct the DAQ reset to restore hardware connection when the Microlog dBX loses connection to the DAQ hardware.

### Test

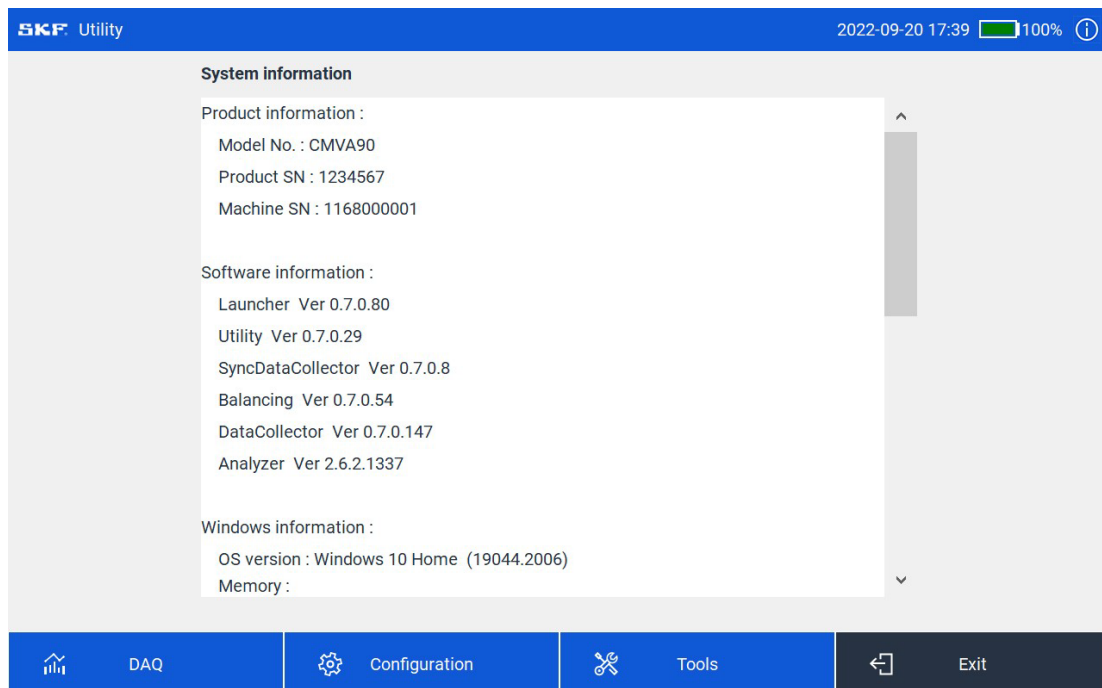
Select the Test function to enter the test page and perform fundamental testing on the DAQ hardware. This page provides you with oscilloscope display to verify the working condition of your DAQ hardware. The TEST function could be useful when you need to verify whether you hardware is working normally.

You can set the bandwidth, select the measurement channels, select coupling mode and input range to conduct measurements.



## 2.3 Configuration

Tap the Configuration menu to enter the configuration setting.



On the Preference setting page, you can set the date and time, language, key sound and power management.

## Date and Time setting

To change the date and time setting, tap the Time Zone menu to display the time zone options. And tap the Change Time button to enter the time setting.

SKF Configuration 2022-09-20 17:46 100%

Date / Time

(UTC+08:00) 台北

2022/09/20 17:46:19

Change time

Language

English

Power management

High performance

Default

Back

(UTC-12:00) International Date Line West

(UTC-11:00) Coordinated Universal Time-11

(UTC-10:00) Hawaii

(UTC-10:00) Aleutian Islands

(UTC-09:30) Marquesas Islands

(UTC-09:00) Coordinated Universal Time-09

(UTC-09:00) Alaska

(UTC-08:00) Pacific Time (US \_Canada)

(UTC-08:00) Coordinated Universal Time-08

(UTC-08:00) Baja California

CANCEL

Date

2022 4 29

Time

PM 5 12

OK

Cancel

**Language**

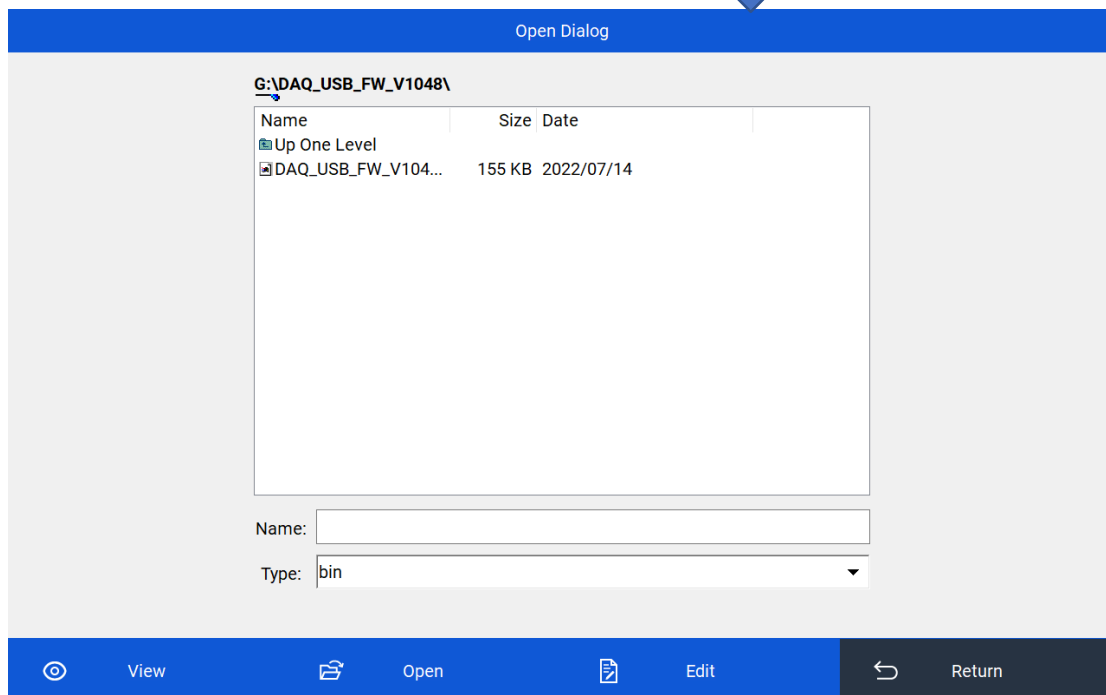
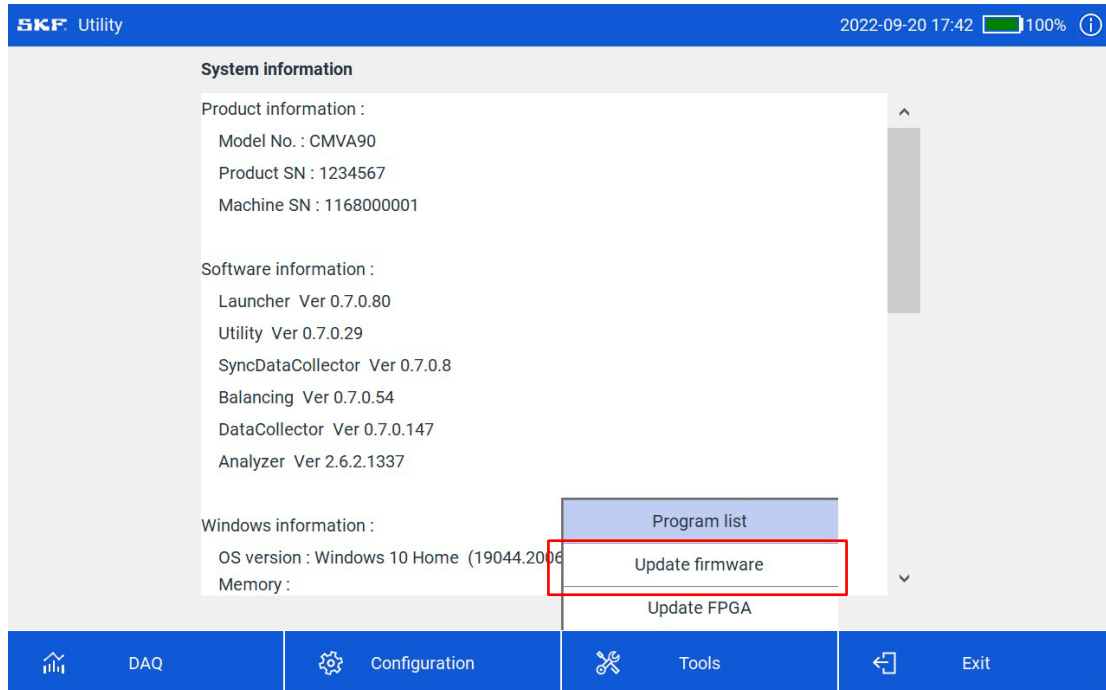
Select the Language for your Microlog dBX. The language setting will be applied to all software modules.

**Power Management**

Select the power manage mode from “High Performance”, “Poser Saver” and “Balanced”. The Balanced Mode is recommended unless you have other requirements.

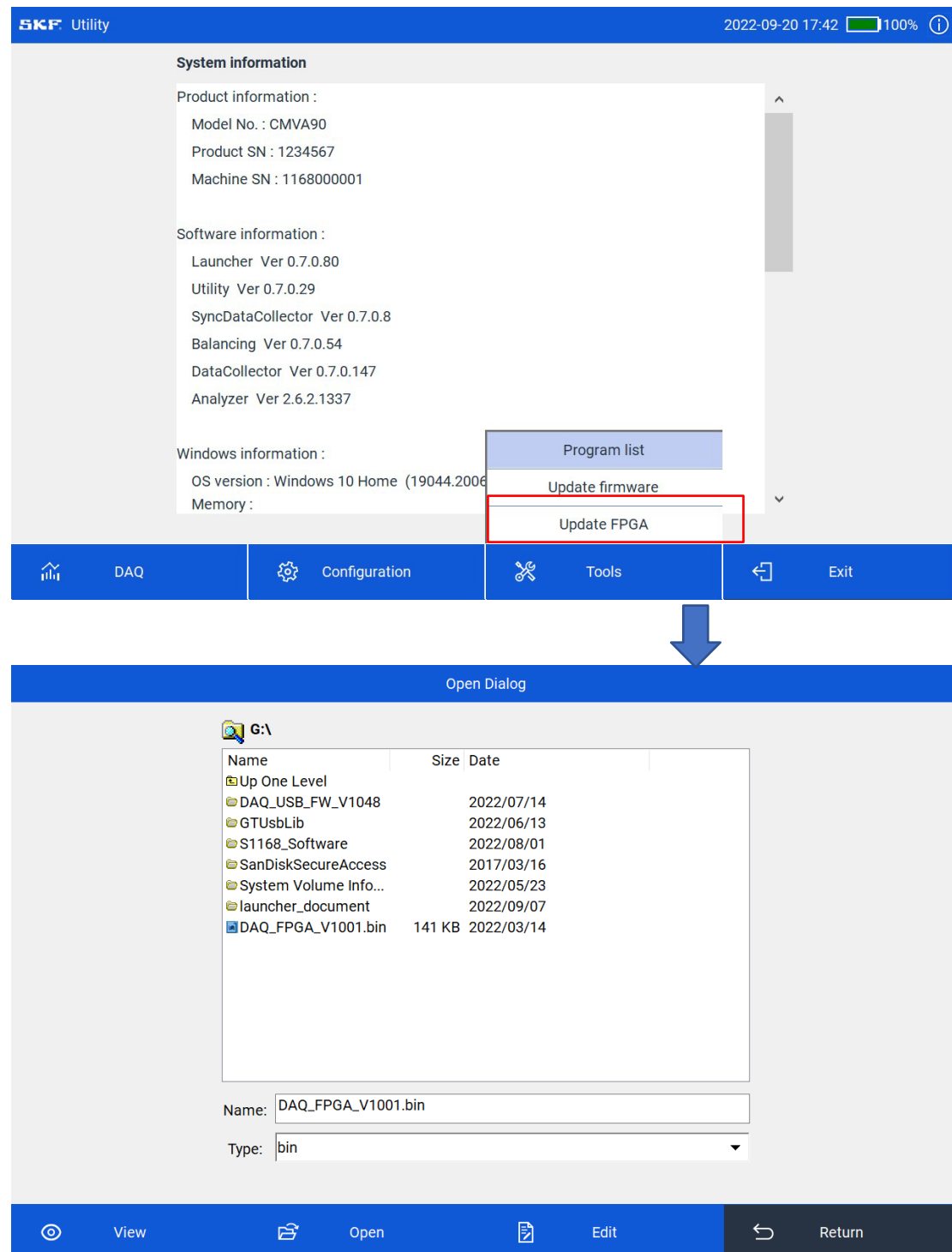
## 2.3 Update Firmware

Select Update Firmware from the Tools menu and enter the firmware update page. It will automatically search for the update files in the external device and conduct an update.



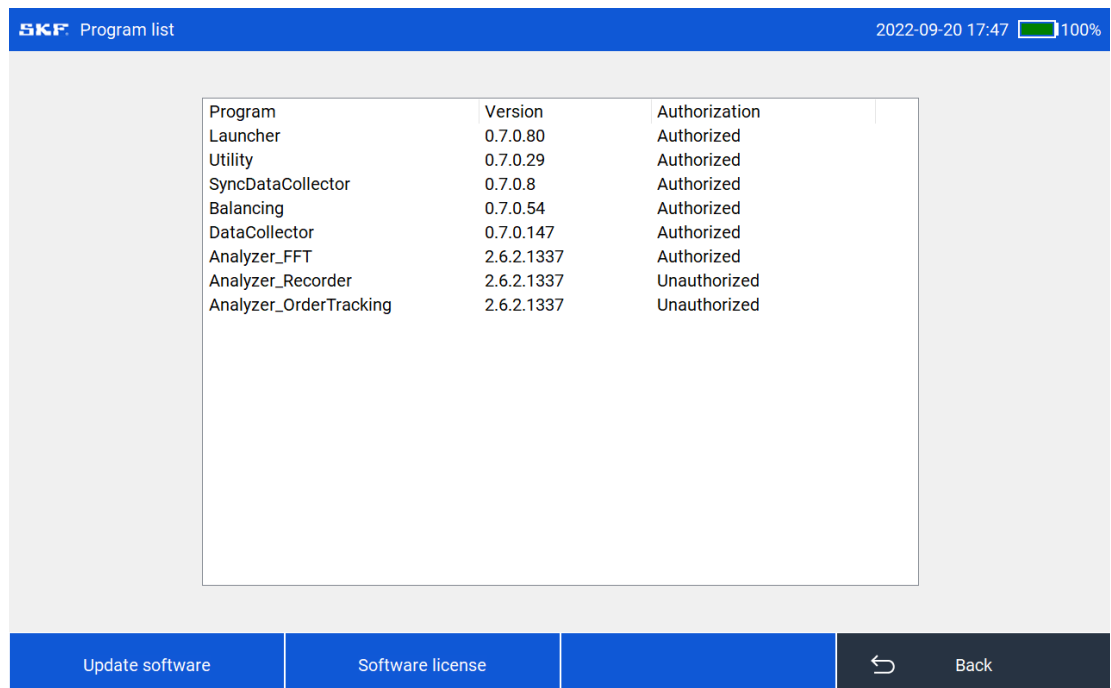
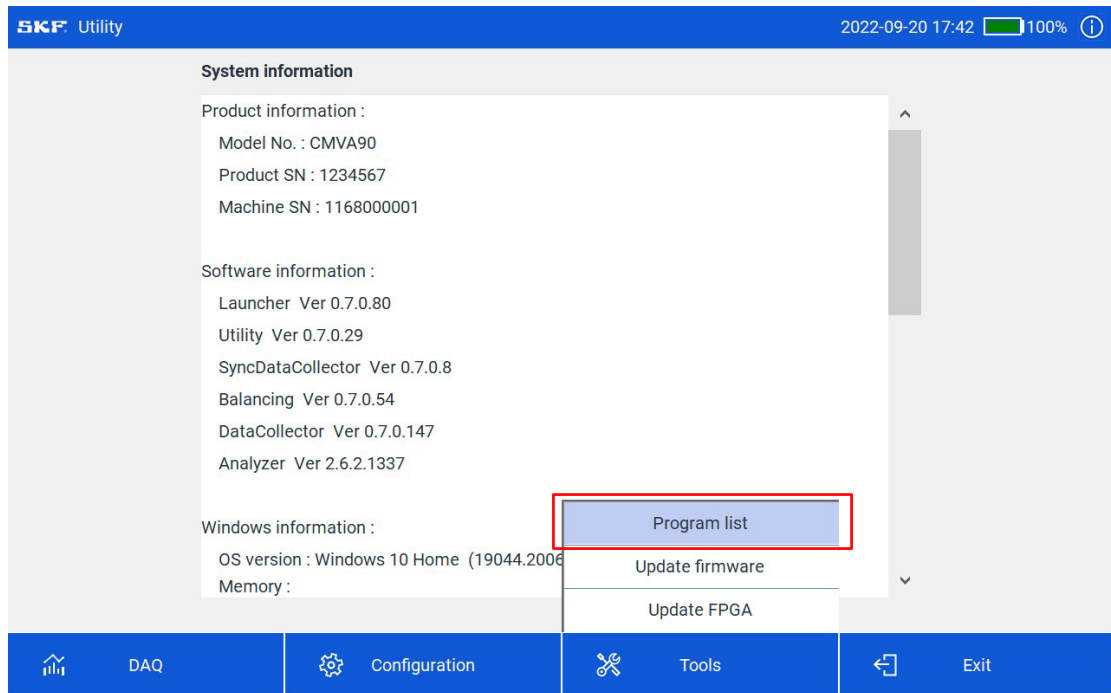
## Update FPGA

Select Update FPGA from the Tools menu and enter the FPGA update page. It will automatically search for the update files in the external device and conduct an update.



## 2.4 Program List

Select the Program List button from the Tools menu to enter the program list page.



The installed software modules and authorization status are listed.