Automatic Passenger Counting

IRMA – Infrared Motion Analyzer
4th generation

IRMA-A21-Windows Release 5

Service Software

Operating Instructions

Sensor families:

- IRMA ADVANCED
- IRMA BASIC
- IRMA 3D

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0.1	26 Jun 2006	ES	HTML-Doku
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Validity

Sensors covered by this document

Product line	Sensor classes
IRMA Infrared Motion Analyzer	ADVANCED, BASIC, 3D

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1 General

1.1 On this document

This document describes how to work with the IRMA-A21-Windows Release 5 Service Software (in the following referred to as Service Software or IRMA-A21-Windows). For configuration of the IRMA sensors and of the analyzer please follow the individual operations described in the document. All actions to be taken (steps) are highlighted in grey.

The instructions and technical data presented apply to the **IRMA BASIC** sensor. All differences of sensors IRMA ADVANCED, 3D and BASIC CAN compared with IRMA BASIC are idendified by according icons in the left-hand margin. IRMA 3D is also referred to as IRMA DIST4 or distance sensor.
All considerations regarding the installation positions of the system components and their orientation are based on the assumption that the viewer is inside the vehicle.
In case of questions or problems during servicing the sensors and analyzer please contact the iris-GmbH salesperson responsible for your region: phone +49 30 585814 0
or online service@irisgmbh.de.

1.2 Equipment required

- PC with Windows XP operating system or higher
- IRMA ADVANCED / BASIC / 3D sensors and analyzer IRMA A-21 [..]
- IRMA-A21-Windows Service Software
- Material required for connecting the analyzer to the PC: cable K-A-21-C-RS232

1.3 Symbols / abbreviations used

"Please note"

"Worth knowing"


"Caution! - Can result in defects."


"Information"


"See Annex"


"See document on our website"


"Instructions"


"Please note down"


"Please contact iris-GmbH"


"Download"


"For IRMA 3D"


"For IRMA ADVANCED"


"For IRMA BASIC CAN"

1.4 Overview of the most important steps

1. Downoad the IRMA-A21-Windows zip file on www.irisgmbh.de under "Technical documents" > "Service Software" > IRMA-A21-Windows-Release_5.1.9_User to your PC and unzip it.
2. Check the PC settings: "System control" > "Device manager" > "Communication connection" (E.G. = COM1).
3. Connection of analyzer to notebook: cable K-A-21-C-RS232.
4. Servicing the sensors and analyzer using IRMA-A21-Windows.

1.5 Disclaimer

The information contained in this document is based on product data resulting from the development and approval phases as well as the production of initial samples. These specifications do not claim to be error-free and will need to be updated or corrected. Such modifications may be made by iris-GmbH without notice. Characteristic or typical values given are based on our experience and are approximate values to be expected; they are by no means guaranteed by iris-GmbH.

2 Preliminary remarks on IRMA-A21-Windows

2.1 Requirements to notebooks (hardware and operating system)

IRMA-A21-Windows runs on all modern computers.
When working with a notebook, we however recommend one with an Intel Centrino processors for reasons of performance and battery life.
Each notebook needs to have an internal serial interface or an USB adapter US232R-100 (item No.: 2913_04) or identical types.
IRMA-A21-Windows has been successfully tested on OS Windows XP, Windows 7, Windows 8 and Windows 10.

2.2 Installation

For installing the software program unzip the .zip file and start IRMA-Setup.exe.
A setup wizard will guide you through the installation.

2.3 Language versions

Figure 1: Language selection

The language selection in IRMA-A21-Windows offers German, English and French.

2.4 Compatibility

With the IRMA passenger counting system: IRMA-A21-Windows is only compatible with 4th generation IRMA (= IRMA ADVANCED / BASIC / 3D).

With the analyzer firmware: The IRMA-A21-Windows Service Software can be used without restrictions for any analyzer software equipped with the communication module version *_C[..]-2.98_* or higher.

2.5 Required hardware

- Notebook with with Windows XP operating system or higher
- Analyzer IRMA-A21..
- Cable K-A21-C-RS232-01-X
  This cable is necessary for connecting the notebook to the server interface of the analyzer (connection "C").
- Service package for distance sensors (CAN-USB converter, driver software, cable K-CAN-02-75cm)
  This service package is indispensable for showing the CAN Port settings and the sensor signals via the IRMA-CAN BUS.

2.6 8N1 * (INEO)

Please follow the steps in this chapter **only** if your vehicle is equipped with the on-board computer system **NCE** by **INEO**. INEO is installed e.g. the on-board computer of the Geneva public transport company TPG (Transports public genevois). The INEO IBIS communication protocols and the standard IBIS communication protocol use the following framing formats:

- INEO variant of the IBIS communication protocol: 8N1
- Standard IBIS communication protocol: 7E2

As there were application problems in the Service Software **from** OS **Windows 7** on due to the INEO framing format 8N1, the following command line parameters were added:

"C:\Program Files(x86)\iris-GmbH\IRMA-A21-Windows Release 5.1.9\IRMA-A21-Windows.exe" **-IBIS8N1+**	for the change-over from 7E2 to 8N1
"C:\Program Files (x86)\iris-GmbH\IRMA-A21-Windows Release 5.1.9\IRMA-A21-Windows.exe" **-IBIS8N1**	equivalent, for the change-over from 7E2 to 8N1
"C:\Program Files (x86)\iris-GmbH\IRMA-A21-Windows Release 5.1.9\IRMA-A21-Windows.exe" **-IBIS8N1-**	for the change-over from 8N1 to 7E2

The parameters can be downloaded from the "System C" directory.
If you need to work with both framing formats, create the appropriate links on your desktop → simply adjust the target path accordingly in a link via the context menu.

Example for the IBIS framing format standard (7E2):

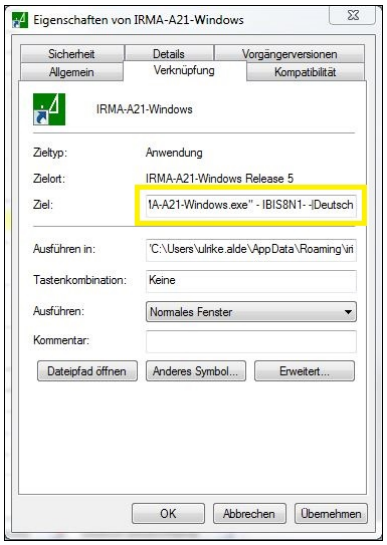


Figure 2: Standard IBIS target path

Right-click on the "Eigenschaften (Properties)" of IRMA-A21-Windows > "Verknüpfung (Link)"

Type in: „-IBIS8N1- -|Deutsch (German)" → then click OK.

IRMA-A21-Windows then runs the standard IBIS protocol.

Example of the INEO IBIS framing format:

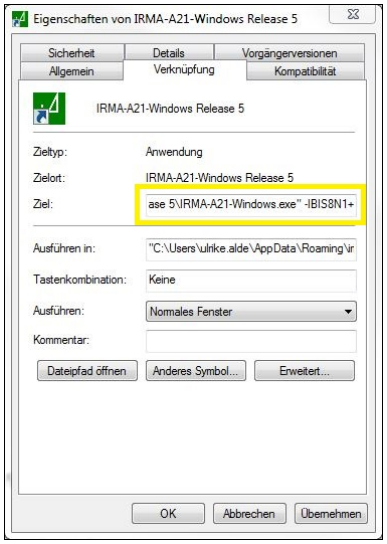


Figure 3: INEO IBIS target path

Right-click on the "Eigenschaften (Properties)" of IRMA-A21-Windows > "Verknüpfung (Link)"

Type in additionally: “2-IBIS8N1+2” → then click OK.

IRMA-A21-Windows then runs the INEO IBIS protocol.

- When you call IRMA-A21-Windows, the start parameters are written in the configuration file (.ini).
- Opening of **"C:\Program Files (x86)\iris-GmbH\IRMA-A21-Windows Release 5.1.9\IRMA-A21-Windows.exe"** will take over the existing settings from the configuration file without the resulting parameters.
- If any of the above command line parameters is called, this entry is in the configuration file and will remain valid until further notice.

2.7 Analyzer connections to be used

IRMA-A21-Windows communicates via **analyzer interfaces**. Before, the power supply must be ensured/connected via **P**ower. A green light (on the left of **C**) means: The analyzer is operative.
The analyzer itself is connected to:

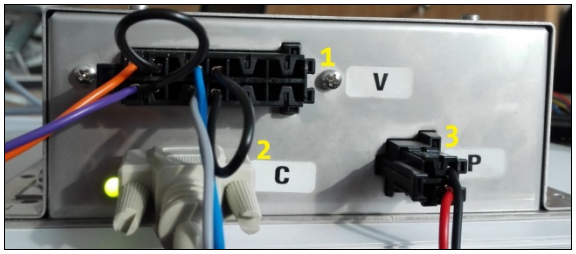


Figure 4: Analyzer interfaces

(1) the connector of the on-board computer interface "**V**" (= vehicle, for door contacts and the on-board computer)

(2) the connector of the service interface with "**C**" (= computer)

(3) connection "**P**" (= power) ensures the power supply

3 IRMA-A21-Windows

IRMA-A21-Windows is the most important Service Software for the IRMA passenger counting system of the 4th generation. IRMA-A21-Windows is used for the **installation** of the IRMA passenger counting system and for occasional **servicing work**.

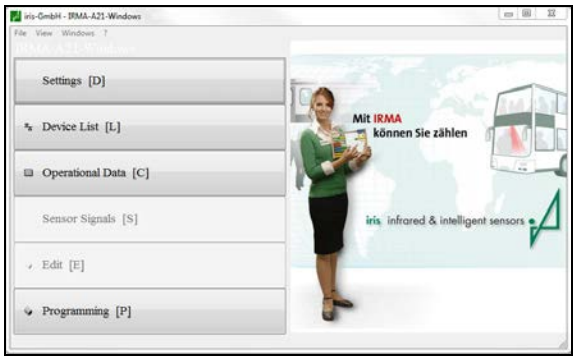


Figure 5: Home page with main menu

The operation of the Service Software is simple so that even persons without well-founded PC knowledge can work with it.

3.1 Default settings

Shortcut: ALT + D + ENTER. In the "Settings" menu point please make the adjustments necessary for the communication between **IRMA-A21-Windows** and the **analyzers and sensors**.
These setting will be stored in an .ini file and are, therefore, again available at the next program start.

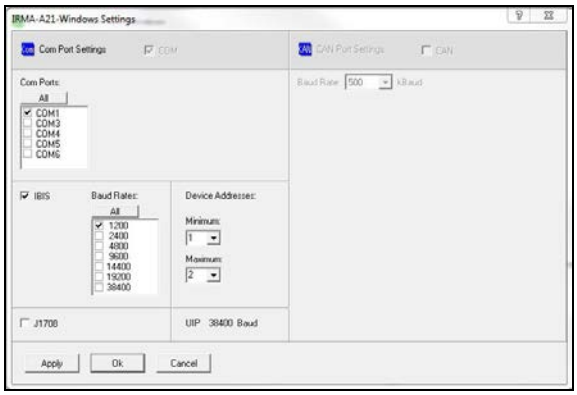


Figure 6: Default settings

Automatic default settings:

- Com Port: 1
- Communication protocol: IBIS (J1708 deselected)
- Baud Rate: 1200
- Minimum device address: 1
- Maximum device address: 2
- CAN/Port/default settings: disabled

3.1.1 Com Port default settings

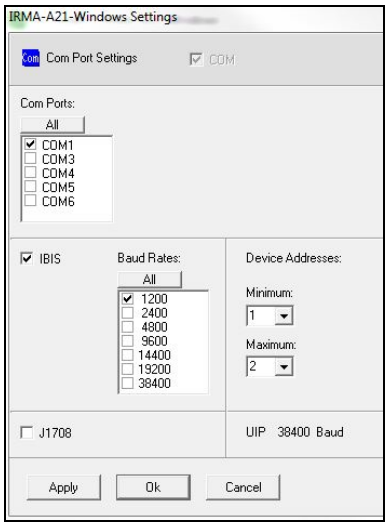


Figure 7: Com Port default settings

Settings for selection:

- **COM PORTS:** all Com Ports registered by Windows are displayed.
- **IBIS:** when selecting the IBIS communication protocol, further settings are available:

  - **Baud Rate:** range: 1200 (automatically checked), 2400, 4800, 9600, 14400, 19200, 38400
  - minimum device address: range: 1,2,...239
  - maximum device address: range: 2,3,...239

- **J1708:** No other settings can be selected, as the Baud Rate is always 9.600. The analyzer device address is irrelevant to the communication with IRMA-A21-Windows for J1708 devices.

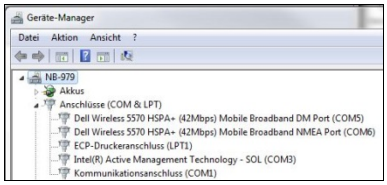


Figure 8: Device manager under system control

Check whether COM1 (automatically checked) is the communication connection of your notebook:

In your Windows start menu click on "System control" > "Device Manager" > "Connections (COM & LPT)" > "Communication connection" (COM1).

Subitem "Communication connection" (COM1), if available, is the interface between the notebook and the analyzer, and thus properly set in the default settings.

Figure 9: *IBIS analyzer label

Check whether the analyzer label shows the addition "IBIS":

Instead of "IBIS", the suffix "RS-485 (.2)" or the complete designation "IRMA-A21CL-3" can be shown here alternatively → do not change the automatic check of IBIS!

The **IBIS** communication protocol is used mainly in vehicles in **German-speaking** countries. On the other hand, the communication protocol **J1708** is mainly used in the **USA** – for analyzers with the follwoing labels: IRMA-A21S-3-J1708; IRMA-A21C-3-J1708.

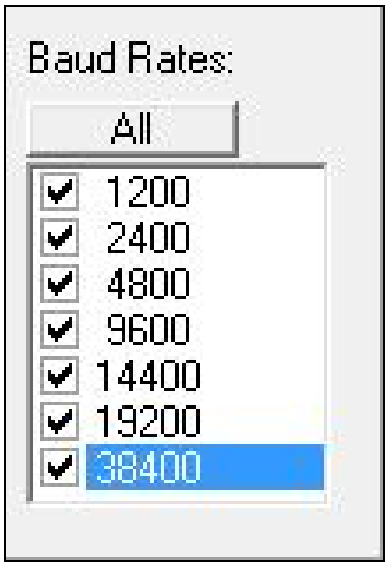


Figure 10: Baud Rate

Set the Baud Rate:

The value 1200 is checked automatically, as the IBIS on-board computer communicates mostly using this Baud Rate.

If you can**not** see the Baud Rate of the IBIS on-board computer in question, mark **all** value ranges by clicking on ALL. **(Please note: the enquiry will take longer).**

Thus all available Baud Rates are taken into consideration in the following step "Query of device list".

3.1.2 CAN Port settings

The CAN Port is default set **for IRMA 3D**. For activating the CAN Port default settings you need:

- **CAN USB converter** [present iris product number: 0301_11]
- **Driver software** CAN-Setup-_V517_Build16SP13, available free of charge from the manufacturer of the CAN USB converter, company SOFTING: http://industrial.softing.com/en/downloads.html: Technology (CAN) > Products Category (Interface Cards) > Product (CANpro USB)
- **Cable** K-CAN-02-75cm (present iris product number: 0240_53)

For this purpose the cable K-A21-C-RS232-01-X on the service interface **C** must be **disconnected** from the PC, as otherwise the counting zones will be shown twice.

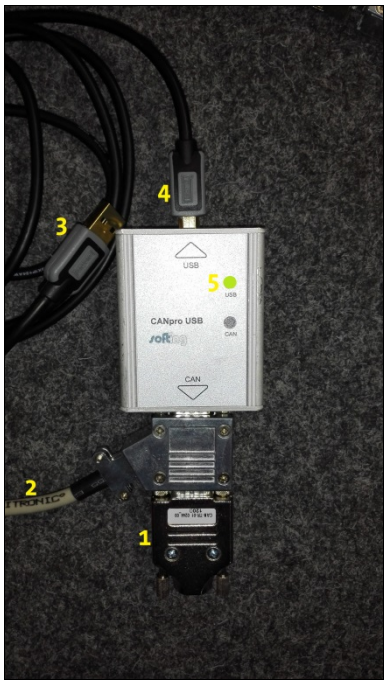


Figure 11: CAN-USB converter

CAN USB converter:

(1) End terminator (optional)
(2) Cable K-CAN-02-75cm
(3) USB connector for notebook connection
(4) USB connector to CAN USB converter
(5) USB LED: green = connection OK between IRMA 3D and notebook
red = no connection

The CAN USB converter serves **only** for **sensor signal generation and representation** and for **sonsor configuration** (CAT tool) by IRMA 3D!

All other functions are performed via the cable K-A21-C-RS232-01-X on the service interface C.

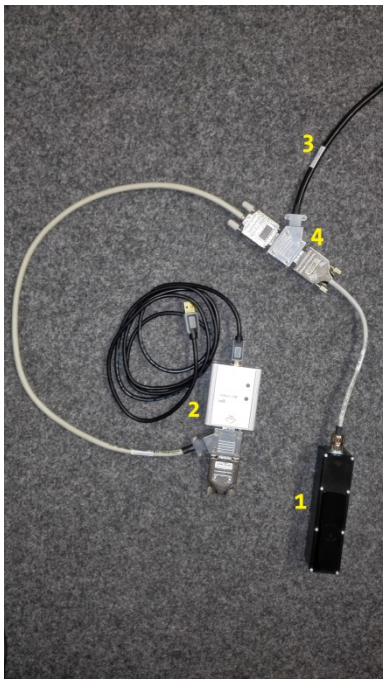


Figure 12: Connection of the CAN USB converter to the CAN BUS of IRMA 3D

CAN USB converter on the CAN BUS:

(1) IRMA DIST4 sensor
(2) CAN USB converter
(3) CAN BUS
(4) T connector (for connecting other sensors /the CAN USB converter to the CAN BUS)

Connect the CAN USB converter to the CAN BUS:
The CAN USB converter is connected to a **cable extension of the CAN BUS**. In Figure 7 the CAN USB converter takes the place of the last sensor in the CAN BUS; therefore the end terminator (120 Ω) is installed on the CAN USB converter.

Connect the CAN USB converter to the T connector of the CAN BUS via the K-CAN-02-75cm cable:

by plugging the cable plug of K-CAN-02-75cm into the female connector of the T connector of the CAN BUS.
Plug the other cable plug of K-CAN-02-75cm into the female connector of the CAN USB converter. Plug the USB cable of the CAN USB converter into the USB slot of your notebook.

Installation of the CANSetup driver software

For commissioning the CAN USB converter you must have installed the driver software **CANSetupV517_Build16SP13**. After execution, the driver software will be found in the menu bar of your notebook with the symbol  .
The driver software recognizes the CAN USB converter and thus makes the connection between IRMA 3D and your notebook.

Program routine

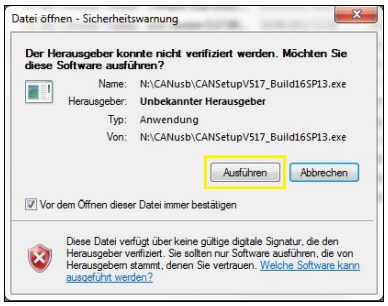


Figure 13: Execution of CANSetup

Open the CANSetup driver software and follow the instructions:

Click on AUSFÜHREN (EXECUTE).

Figure 14: Installation of CANSetup

Click on NEXT to perform "InstallShield Wizard" in CANSetup.

Figure 15: Program Maintenance in CANSetUp

Check "Modify" and click on NEXT in order to perform "Program Maintenance" in CANSetup.

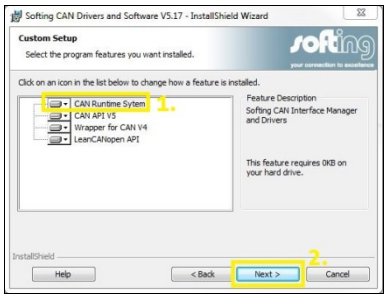


Figure 16: Custom Setup

Check the "CAN Runtime System" and click on NEXT afterwards in order to perform the "Custom Setup" in CANSetup.

Figure 17: Softing CAN Drivers

Click on INSTALL to execute "Softing CAN Drivers".

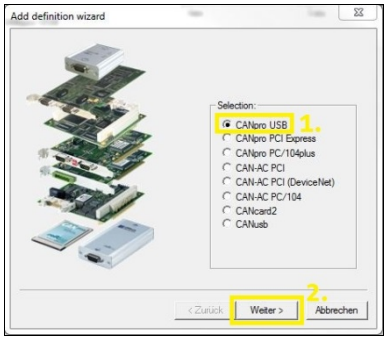


Figure 18: Selection of the device type

A selection window opens:

Check "CANpro USB" and click on WEITER (NEXT).

Figure 19: Editing the device name

An editing window for entering the device name opens:

Enter a name in the field. (This name can be the real device name as shown in Figure 19.)

Then click on WEITER (NEXT).

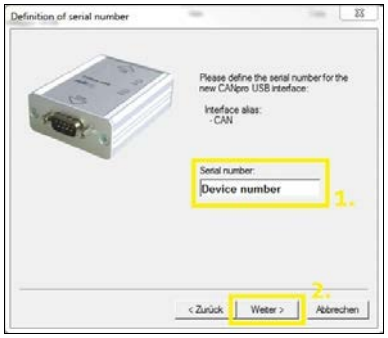


Figure 20: Entering the device number

An editing window for entering the device number opens:

Enter the serial number. You will find this number on the rear of the CAN USB converter.

Then click on WEITER (NEXT).

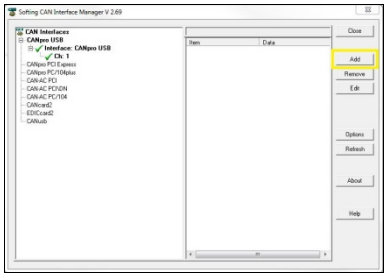


Figure 21: Recognized CAN USB converter

In the left field in the window you see the detected device; you fixed the devices and channel names before. In the example in Figure 21 the device is "CANpro USB" and the channel is number "1".

Click on ADD to add the CAN USB converter.

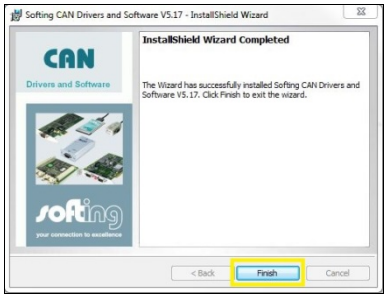


Figure 22: CANSetup installed successfully

The installation of the CANSetup driver software and device recognition were successful.

Finally click on FINISH.

→ The connection between IRMA 3D and your notebook has been successfully established.

If you have difficulties downloading the driver software or if there are problems during the installation, please contact us on +49 (0)30 5858140 or service@irisgmbh.de.

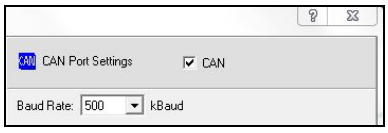


Figure 23: Activated CAN Port default settings

Selectable settings in the CAN Port default settings:

- **Baud Rate:** range: 500 (recommended) or 1000 KBd

Changing the Baud Rate:

- After each change of the CAN Baud Rate, restart IRMA-A21-Windows.
- All IRMA CAN BUS partners must operate with the same Baud Rate. In addition to the analyzers and sensors this applies also to IRMA-A21-Windows.

3.2 Query of the device list

The menu item DEVICE LIST (shortcut: ALT + L + ENTER) serves to query the analyzers connected to a notebook.
Connection to be used on the analyzer:
The device list can be queried both via the **service interface** and via the **on-board computer interface**.

Program routine

Figure 24: Query in "Default settings"

Click **either** on the APPLY under menu item "Settings"

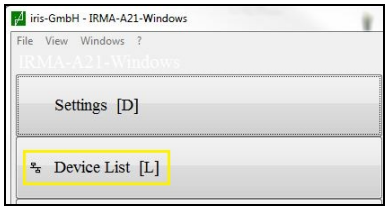


Figure 25: Device list in the main menu

or on the menu item "Device list".

Figure 26: Query

Then the query opens in a separate window:

The query of the device list is completed when the blue progress bar is 100 % complete.

Functional **A**rea = door address with >1 sensor/s

All connected sensors are shown in "IRMA Function Areas" in the right window field as soon as IRMA-A21-Windows has communicated with **at least** one analyzer:

IRMA Function Areas:

FA	ElemComb	Analyzer	Software	Port
1	J.8Ko	26 2516	S8KO_AA21S_CI-5	COM8
2	J.8Ko	26 2516	S8KO_AA21S_CI-5	COM8

Figure 27: FA - Function Areas

Figure 27 shows two door addresses with one analyzer and two IRMA BASIC sensors each. **FA 1 + 2** (Function Areas 1 + 2).

IRMA Function Areas:

FA	ElemComb	Analyzer	Software	Port
1	N.RT4	26 2516	S8_AA21S_CI-5.9	COM8
2	D.RT4	26 2516	S8_AA21S_CI-5.9	COM8

Figure 28: FA IRMA ADVANCED

Figure 28 shows two door addresses with one analyzer and two IRMA ADVANCED sensors (= N/D.RT4.sensors) each. **FA 1 + 2** (Functional Areas 1 + 2).

IRMA Function Areas:

FA	ElemComb	Analyzer	Software	Port
1	M.DIST4	29 1582	SDIST4_AA21C_C	CAN1
2	Z.DIST4	29 1582	SDIST4_AA21C_C	CAN1

Figure 29: FA IRMA 3D

Figure 29 shows two door addresses with one analyzer and two IRMA 3D sensors (= Z.DIST4.sensors) each. **FA 1 + 2** (Functional Areas 1 + 2).

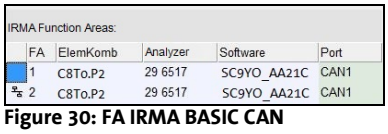


Figure 30: FA IRMA BASIC CAN

Figure 30 shows two door addresses with one analyzer and two IRMA BASIC CAN sensors (=C8To.sensors) each. **FA 1 + 2** (Functional Areas 1 + 2).

Information shown **for each door address** (FA):

- the door address (FA)
- the element combination of the firmware (ElemComb = sensor arrangement)
- the analyzer firmware (Software)
- the Com Port used for communication betwen IRMA-A21-Windows and the analyzer (Port)

After the successful device query, all functionalities of IRMA-A21-Windows are available to the analyzers detected:

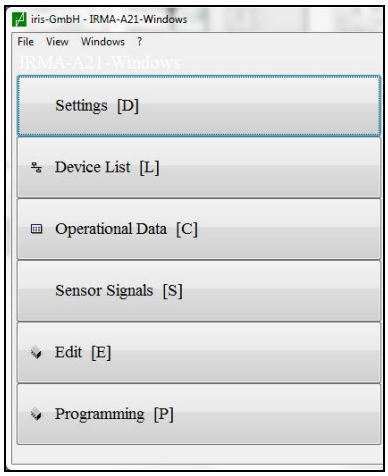


Figure 31: All functions of the Service Software

- Query of the counting results via "Operational Data" (shortcut C)
- Display and/or storage of the sensor signals via "Sensor Signals" (shortcut S)
- Change of configuration via "Edit" (shortcut E)
- Loading of software via "Programming" (shortcut P)

3.3 Operational Data

The menu item "Operational Data" (shortcut C) serves to test the communication between the analyzer and the notebook. This process simulates the on-board computer query.

For communication between the passenger counting system IRMA and the on-board computer there are mainly **two** communication protocols which are used depending on the analyzer types in use:

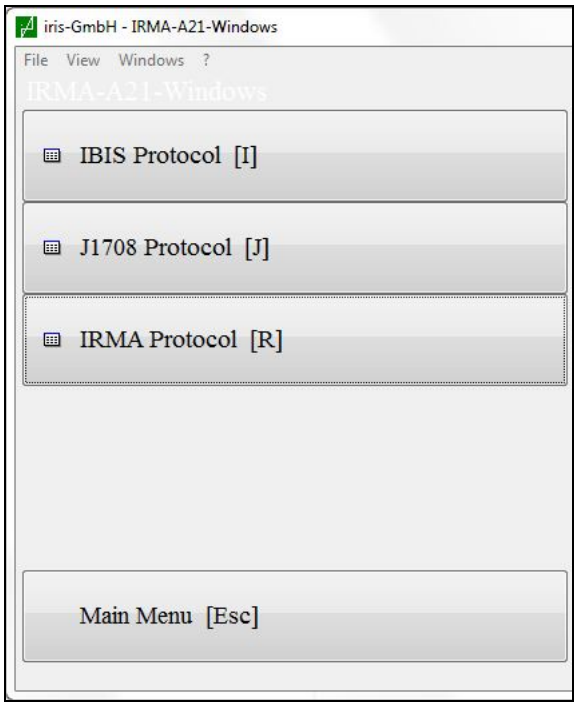


Figure 32: Communication protocols

- the **IBIS** communication protocol is used for analyzers with the IBIS, RS-232 or RS-585 operating interface (shortcut I)
- the **J1708** communication protocol is used for analyzers with the J1708 operating interface (shortcut J)
- IRMA protocols are proprietary (iris internal program) and are to be used like the IBIS communication protocol.

3.3.1 IBIS communication protocol

IRMA-A21-Windows **simulates** the **on-board computer query** of all analyzers installed in the vehicle.

The different sensors of the individual door addresses send the counting results to the analyzer. The on-board computer stores all counting data which the on-board computer retrieved from the analyzer before.
Communication is possible both via the service interface (**C**) and the on-board computer interface (**V**).

The following applies to the on-board computer interface: Communication is only possible if no cable is connected to **C** or, in case a cable is connected to **C**, the other connector "hangs free". The following applies to the service interface: independently of the settings, communication is always effected in the full duplex mode (4-wire), see p. 22 "Echo test".

Program routine

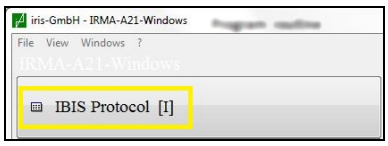
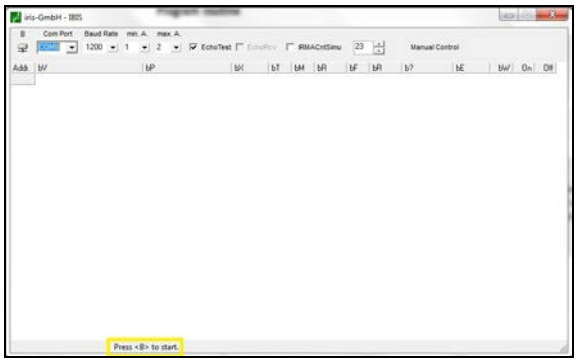


Figure 33: IBIS communication protocol

Open the IBIS communication protocol:

by clicking on “IBIS Protocol” or the shortcut I →

The IBIS communication protocol opens in a new window.

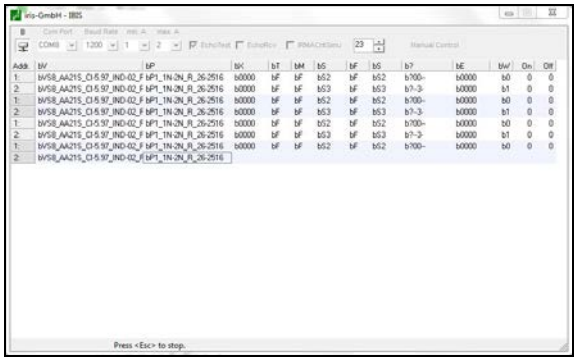


Start the query:

Click on the shortcut B as shown in the bottom line of the window to start the analyzer query for counting data. Click Esc to stop the query.

Figure 34: Start of query, IBIS communication protocol

Counting data in the IBIS communication protocol



The following options are available (independently of the options in the default settings):

- Selection of the **Com Port**: all Com Ports registered by Windows are shown
- Selection of the **Baud Rate**: range, 1200 (standard), 2400,
- 4800, 9600, 14400, 19200, 38400

Figure 35: IBIS query of the analyzer counting data

- Selection of the lowest door address to be queried **(min. A)**: range 1 - 63, recommendation: 1
- Selection of the highest door address to be queried **(max. A)**: range 2 - 63, recommendation: value of the number of doors in the vehicle
- **EchoTest**: for communication in the half duplex mode (2-wire) the box must be checked (recommended for IBIS). For communication in the full duplex mode (4-wire), the echo test is irrelevant (recommended for J1708 and RS 485(.2))
- Disabling/enabling the test function "Simulation of passengers boarding/alighting" **(IRMA-CntSimu)**: This function counts 100 passengers boarding the vehicle and alighting from it during several door opening/closing operations. This is to check whether the signals are recognized and interpreted as a set (numerical values) by the analyzer. This applies only to the IBIS communication protocol!
- **Manual Control**: Selection of FAs and transmission of "Reset bS3 / bR03" (depending on full or half duplex mode) to FA → incoming status bF from the analyzer (status bF: see Table 1, p. 23)

Relevant data queries in the IBIS communication protocol

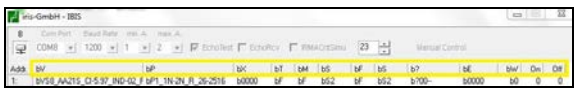


Figure 36: IBIS data queries

Table 1: IBIS data queries

Symbol	Meaning	Example
bV	Analyzer software query	bVS8KO_AA21S_CI-5.97_IJJ-07 [...] ("JJ" meaning here: two doors)
bP	Parametring query	bP1_1N_R_26-2516
bX	Updated counter reading (in hexadecimal numeral system)	b030? (3 persons boarding, 15 alighting)
bT	Door opened / vehicle ignition switched on (command to device, no query)	bF
bM	Door closed / vehicle ignition switched off (command to device, no query)	bF
bF	Tour started	bF
bS	Status of the FA	bS0 = IRMA in order, no measuring result available bS1 = IRMA in order, new measuring result available bS2 = IRMA in order, measurement not yet concluded and/or counting results not yet transferred to the output buffer bS3 = IRMA defective bS4 = IRMA sabotaged
b?	Sensor-related status (indication of defects or sabotage)	b?00-- = ok b?--34 = (3) defective; (4) sabotaged
bE	Counting results	b0000
bW	Query of the door status	b0 = door opened or in motion; b1 = door closed

3.3.2 Communication protocol J1708

The IRMA-A21-Windows Service Software simulates the query of all analyzers installed in the vehicle by the on-board computer.

The counting results are transmitted to the analyzer by the different sensors of the individual door addresses. The on-board computer stores all counting data which it retrieved from the analyzer before.

Communication is possible both via the service interface (**C**) and the on-board computer interface (**V**).

Figure 37: Analyzer label *J1708

Please note that an analyzer with the software for **J1708** must be connected in order to use the J1708 communication protocol; see analyzer label.

Program routine

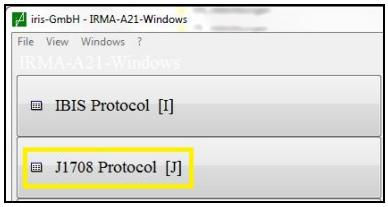


Figure 38: J1708 protocol

Open the J1708 Protocol

by clicking on “J1708 protocols” or the shortcut J → the J1708 ommunication protocol opens in a new window.

Figure 39: Start of query, J1708 communication protocol

Start the query

by clicking on the shortcut B as shown in the bottom line of the window to start the analyzer query for counting data. Click Esc to stop the query.

In the J1708 communication protocol just **one** sensor can be listed for **each** door area (FA). It is determined in advance in the J1708 firmware in the analyzer.

Counting data in the J1708 communication protocol

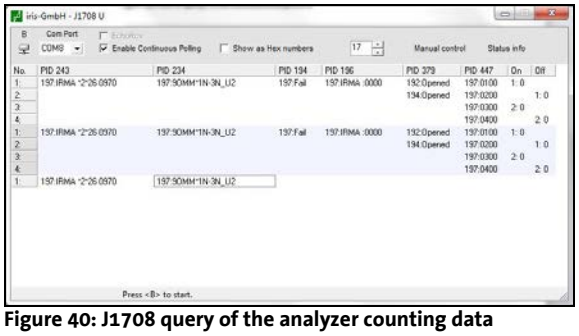


Figure 40: J1708 query of the analyzer counting data

The following options are available:

- Selection of the **Com Port**: all Com Ports registered by Windows are shown
- Selection whether IRMA-A21-Windows is to **send J1708 commands** or not (check "Send J1708 commands”)

- **Show hexadecimal numbers:** check if the counting data are to be shown in hexadecimal numbers

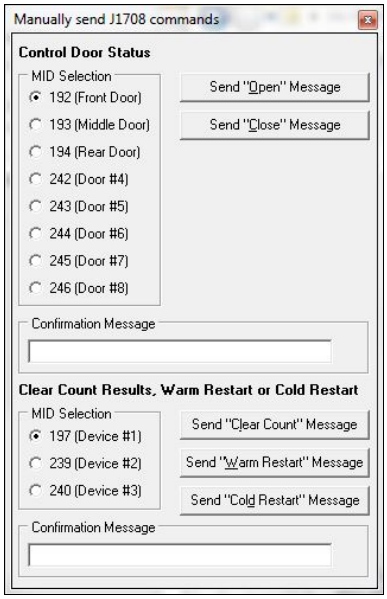


Figure 41: Manual control

Manual control: the door contact protocols can be sent by IRMA-A21-Windows:

"Control Door Status" (send door status to analyzer)

- "MID Selection": select the door(s) in question
- "Send Open Message": indicate open door
- "Send Close Message": indicate closed door

"Clear Count Results, Warm Restart or Cold restart"

- "MID Selection": select the door in question
- "Send Clear Count Message": reset counting results to 0, prevents adding-up of the counting results (best used between two stops)

- "Send Warm Restart Message": reset the counting results to 0 for all doors (similar to function "Send Clear Count Message"), automatic reset of the defect status
- "Send Cold Restart Message": restart (the system is reset to its state after switching on)

Figure 42: Status info

- "Status Info": here you can retrieve further information on the software.

Relevant data queries in the J1708 communication protocol

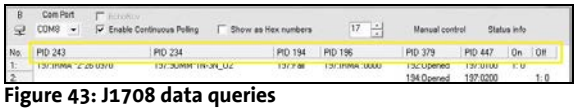


Figure 43: J1708 data queries

Table 2: J1708 data query

Symbol	Meaning	Example
PID	Parameter Identifier	Defines the content of the message / the type of the data
MID	Message Identifier	Defines the device to be addressed (analyzer with device address)
PID 243	Query of the device number	e. g.: 197:IRMA*2*26 0970
PID 234	Query of the door logic at the door address	e. g.: 197:90MM*1N-3N_U2 MM = element combination 1N-3N = FA1 and FA3 U2 = protocol variant
PID 194	Query of the system status	197:Ok

PID 196	Query of the sensor status	197: IRMA 1100 1= ok 0 = sensor not in use, defective or sabotaged e.g.: IRMA 1100 (= 1st+2nd sensors ok, 3rd+4th sensors not in use /defective / sabotaged)
PID 379	Query of door status	192:Openend 194:Openend
PID447	Query of counting results (from four doors in this case)	197:0100 197:0200 197:0300 197:0400
Board / Alight	Query of the passengers boarding the vehicle and alighting from it	1:0; 2:0; 1:1; 2:1 (first figure = consecutive door numbering, second figure = depending on Board / Alight the number of passengers boarding and alighting

3.4 Display of the sensor signals

The menu item "Sensor Signals" (shortcut S) serves to visualize the sensor signals. Independently from the IBIS or J1708 communication protocol, the sensor signals are queried in a separate window. During the installation of the passenger counting system, the representation of the sensor signals is required for the adjustment of the sensors (only for IRMA BASIC sensors).

Program routine

There are two options for sensor signal query with the **door opened**:

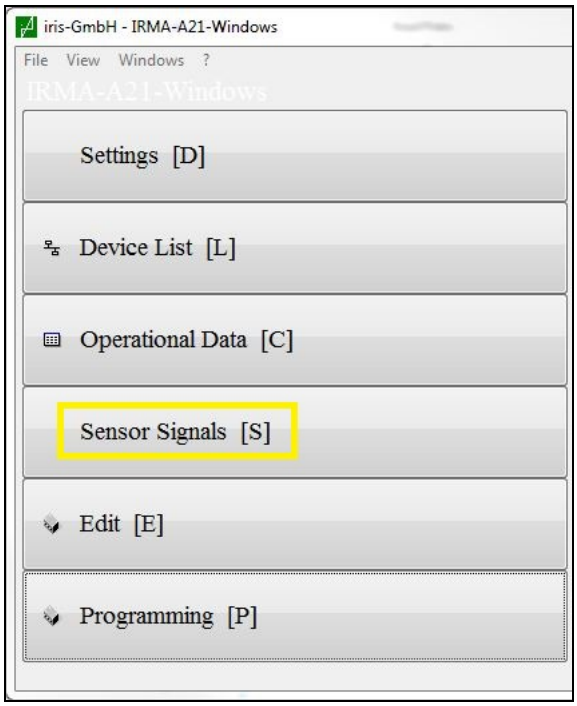


Figure 44: Selection of sensor signals in the main menu

Open the sensor signals **either** in the main menu:

by clicking on "Sensor Signals" or the shortcut S.

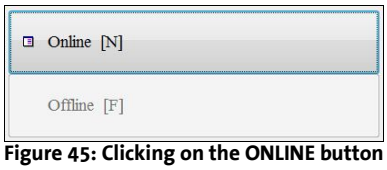


Figure 45: Clicking on the ONLINE button

and then click on "Online" or the shortcut N in the submenu.

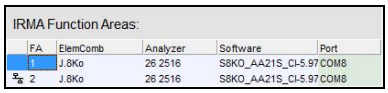


Figure 46: Selection of sensor signals via the IRMA function area

Or: simply click in any of the fields under IRMA Function Areas → the sensor signals open in a separate window, see from p. 28 on.

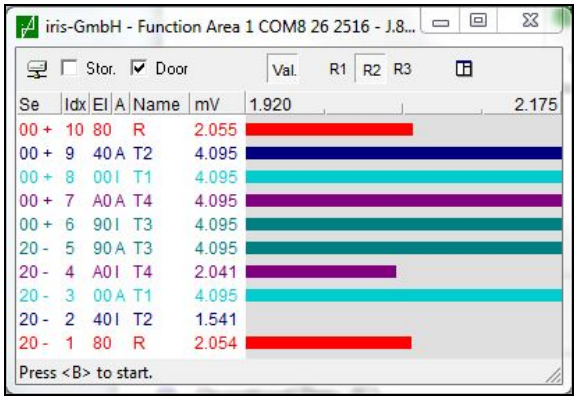
3.4.1 Representation of the sensor signals of IRMA BASIC

(= 8xxxx sensors) The following **steps** require the sensor signals for IRMA BASIC:

- Adjustment of the sensors
- Check of the sensor installation
- Check of the door contacts
- Performance of test runs with signal recording and storage

Connection to be used on the analyzer:
The display of the sensor signals is possible via the **service interface** and via the **on-board computer interface** (only in the full duplex mode, 4-wire). Regarding the functionality, there is no difference between these protocols.

Program routine



Click on B or the icon to start the query.
The coloured bars in the right field of the window show the sensor signals.
The sensor "reacts" as soon as infrared light reflected by an object is returned to it → sensor is intact.

Figure 47: Options in the IRMA BASIC sensor signal representation

Click on Esc or alternatively on the icon for ending the sensor signal query.

The following settings are available:

- Signal storage: for storing the sensor signals click on **„Stor.“**
- Door contacts: for checking the door contacts and for test rides with signal storage click on **"Door"**.
- Selection of the range of the sensor signals shown: select the display range of the sensor signals by clicking on one of the buttons **R1, R2, R3**:
  - Range R1: 0 - 4095 digits (complete range)
  - Range R2: 1920 - 2175 digits (middle range, suitable for sensor adjustment)
  - Range R3: 0 - 511 digits (lower range, suitable for checking the sensor active component)
- Element combination: clicking on the symbol opens a list with the available element combinations; select the element combination in question.

3.4.2 Representation of the sensor signals from IRMA 3D

(= distance sensors) The sensor signals are necessary for checking the installation of the distance sensors. The door contact can be checked via any of the three interfaces.
Connection to be used on the analyzer:
The display of the sensor signals is possible via the **service interface**, the **on-board computer interface** and via the **IRMA CAN BUS**.

The IRMA 3D sensor signals are ideally displayed via the **CAN USB converter**, not via the service interface. You can **store** the complete set of **sensor signals** on your notebook (for connection of the CAN USB converter, see p. 14).

However, for test rides (after the initial installation of IRMA 3D in the vehicle) use the **IRMA TestRide** software in order to obtain sensor signal recordings quickly and simply.

The following applies to the **service interface**:
The sensor signals are shown on the notebook, but cannot be stored. Only every fourth query is shown for each sensor. The sensor signals from several doors can be shown together simultaneously (only for signal reception via the CAN BUS); otherwise only signals for one door are displayed. A check of the door condition is possible.

The following applies to the **CAN interface**:
The sensor signals are shown on the notebook and can also be stored there. It is possible to display and store the sensor signals from several doors simultaneously. A check of the door contact is possible.

Program routine

Open the IRMA 3D sensor signals in the same way as IRMA BASIC in p. 27.

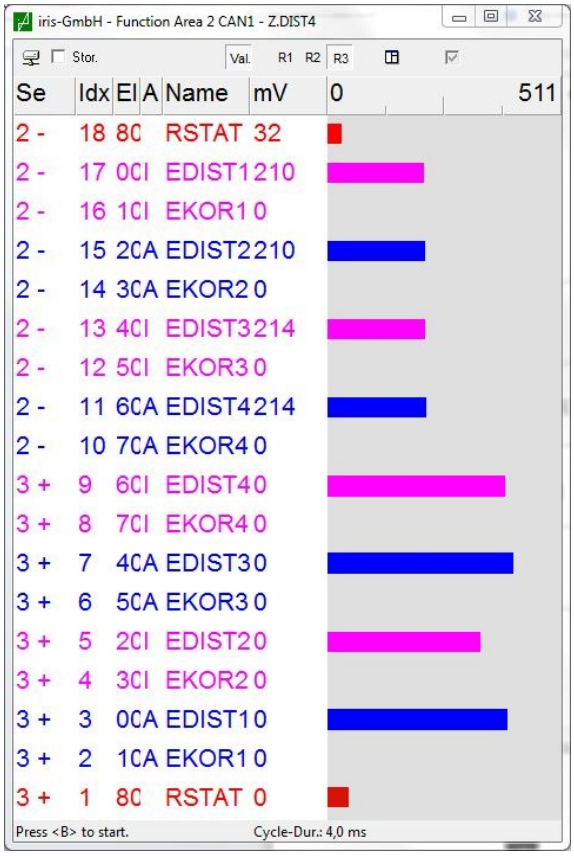


Figure 48: IRMA 3D Sensor signal display options (display via CAN USB converter)

The following settings are available:

- Signal storage: for storing the sensor signals, check the box **“Stor.”**.
- A door recognized by the analyzer as open is **“Cycle-Dur.: [..]”** represented by a green bar, a door recognized as closed by a red bar.

Important: The sensor signals for two sensors are shown, thus the double representation of signal parameters. The sensor signals “deflect” to the left (not to the right as with IRMA BASIC).

3.4.3 Representation of the sensor signals of IRMA BASIC CAN

BASIC CAN

The program routine is analogue to that of IRMA 3D. For the connection use the **IRMA CAN BUS** via the **CAN USB converter**, as described in p. 28. The display of the sensor signals corresponds to that of IRMA BASIC in p. 27.

3.4.4 Signal storage

On conclusion of the sensor signal query the signal storage function Stor. stores the sensor signals in the form of signal diagrams (.uff file) in a directory of your choice on your notebook.
In test rides e.g. the signal diagram is required to check the sensor signals in situations where passengers mount the vehicle or alight from it. The following signal diagrams were performed with two IRMA ADVANCED sensors, which explains the differences to other signal diagrams.

Program routine

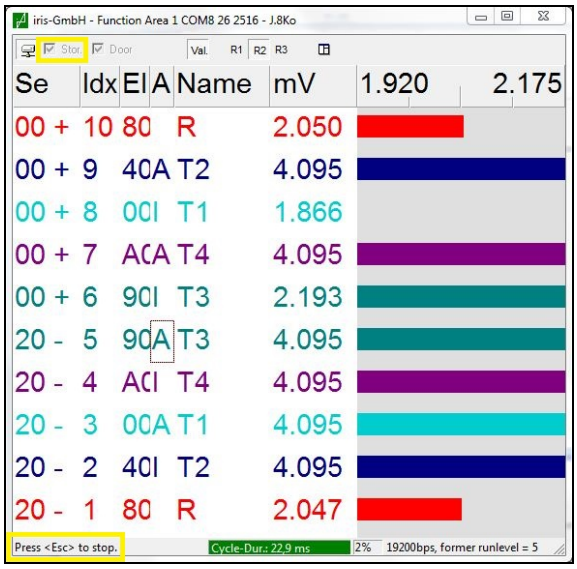


Figure 49: Sensor signals for storage

First check "Stor.". Then click on B to start the sensor signal query.

Click on Esc to stop the sensor signal query and store it.

→ The signal diagram opens as an .uff file; the storing window for selection of file name and location also opens.

Figure 50: Signal diagrams, .uff file and storage window

Select the file name and location and store the signal diagram for later perusal.
An IRMA-A21-Windows copyright window opens; close it by clicking on OK.

Then you can optionally set viewing modes in the signal diagram.

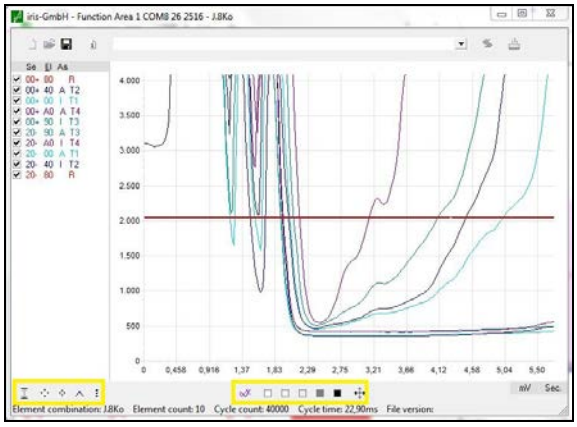


Figure 51: View settings in signal diagram

The amplitude on the y scale (mV) shows the good working order of the sensor. The x scale shows the time slot. In Figure 51 three objects passing the sensor were detected.

Selectable view settings:

- Switch-over of the y scale (full or adjusted)
- Auto resizing (show entire graphic)

- Rezoom (restore last zoom view)
- Change marker
- Change cursor measurements
- Change display mode
- Change element colours
- Change to: white, light grey, grey, dark grey and black
- Change direction of mouse wheel

3.5 Editing of configuration files

The menu item "Edit" (shortcut E) serves to configure the analyzer for the door areas (FAs). For configuration of the analyzer use the **IRMA A21 Configuration Assistant** which opens directly after you have clicked on “Edit”.

Connection to be used on the analyzer:
Configuration can be made both via the **serial interface** and the **on-board computer interface**.
If a notebook is simultaneously connected to the analyzer, configuration is made via the service interface **C**!

During the installation of the automatic passenger counting system IRMA, **different parameters** of the analyzer/s must be set. The most important of these are:

- Number of counting zones
- Baud Rate
- Device address
- Address of the counting zone in question
- Setting of logical polarity (logically positive / negative)

Program routine

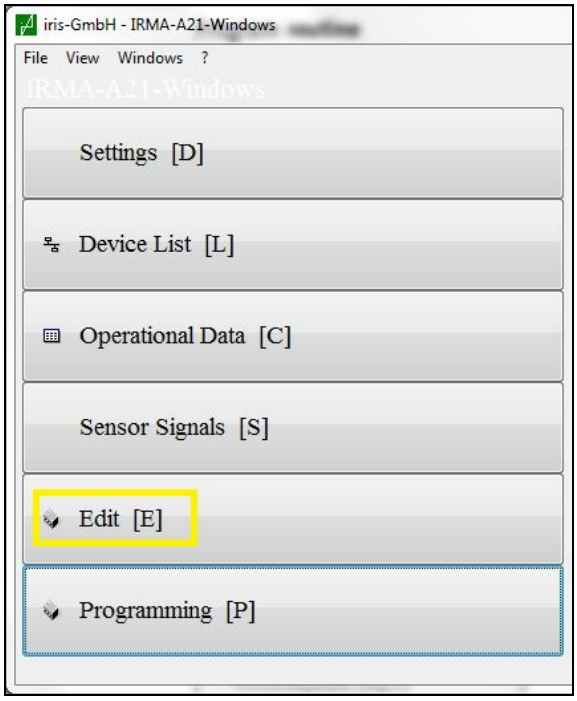


Figure 52: Editing

Open the Editing program:

by clicking on “Edit” or the shortcut E.

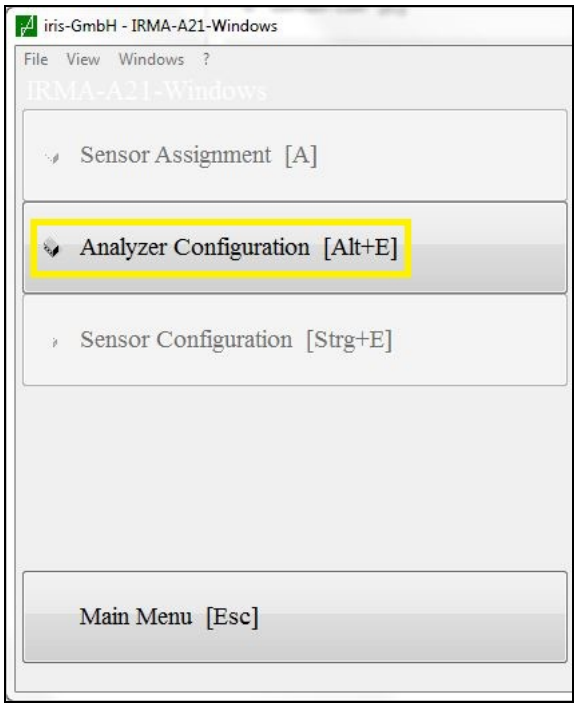


Figure 53: Analyzer configuration

Open the analyzer configuration:

by clicking on “Analyzer Configuration” or the shortcut Alt + E → the “IRMA A 21 Configuration Assistant” opens.

3.5.1 IRMA A21 Configuration Assistant

The "IRMA A21 Configuration Assistant" reads out and displays **all configuration data** from the analyzer. Depending on the analyzer type and/or sensor type in use, not all selection options are available and can be edited at all times (those not available are shown greyed).

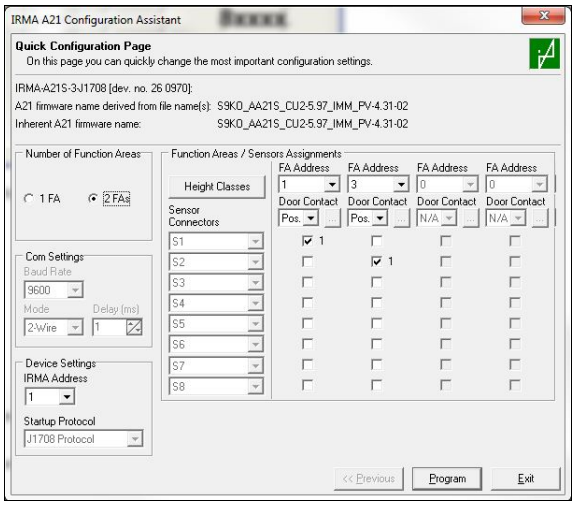


Figure 54: IRMA A21 Configuration Assistant for editing

The following configurations are shown:

- Number of counting zones **(Number of Function Areas)**: 1 or 2
- **Com Settings:**
  - **Baud Rate**: range for the IBIS communication protocol 1200, 4800, 9600,14400, 19200, 38400; range for the J1708 communication protocol 9600 (cannot be edited)
  - Operation Mode **(Mode)**:
    - range for the **IBIS** communication protocol: 4-wire (full duplex, the status query bSH is answered, the status query bRH is not answered), 2-wire (half duplex, only possible for analyzers with RS-485 operating interface, status query bRH is answered, status query bSH is not answered)
    - range for the **J1708** communication protocol: range: 2-wire (cannot be edited)
  - **Delay (ms)**: delay to the answer of the analyzer to data queries addressed to it (available only for half duplex), range: 0, 1, ...50 (recommended value 20 ms)
- Device address **(Device Settings)**:
  - **IRMA Address**
    - range for the **IBIS** communication protocol: 1 - 16
    - range for the **J1708** communication protocol: 1 - 3

If several analyzers are fitted to the vehicle, each analyzer needs to have its own device address. This means that the IRMA A21 Configuration Assistant must be opened and filled out for each analyzer. The addresses must have different numbers.

  - **Startup Protocol**: range: IBIS Protocol, J1708 Protocol. These entries are determined by the analyzer firmware and cannot be edited. Diese Einträge

- **Function Areas / Sensor Assignments**
  - **Height Classes**: Sensor Connectors (S1 – S8, cannot be edited for the J1708 communication protocol)
  - **FA Address** (4 fields):
    - range for the IBIS communication protocol: 1-64

- range for the J1708 communication protocol: 1-8

→ The ranges of the FA Addresses are the door numbers where the counting is performed.

- **Door Contact**: is automatically checked as Pos. (logically positive), as thus counting is ensured even with the engine switched off (but the ignition active) (e.g. at terminal stops).

Program routine

Figure 55: Program button in the Assistant

Start the configuration by clicking on PROGRAM at the bottom right in the "IRMA A21 Configuration Assistant".

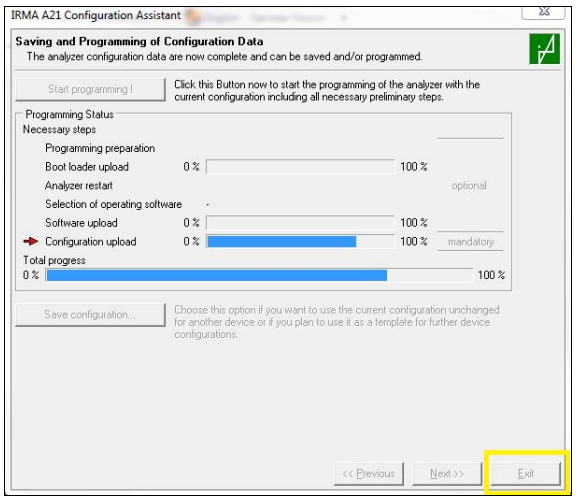


Figure 56: Window for configuration

Wait until configuration is concluded.

The process "Saving and Programming of Configuration Data" is shown in the separate window of the configuration process.

When the blue bars "Configuration upload" and "Total progress" are both at 100%, click on EXIT at the bottom right in the window → a new device query starts.

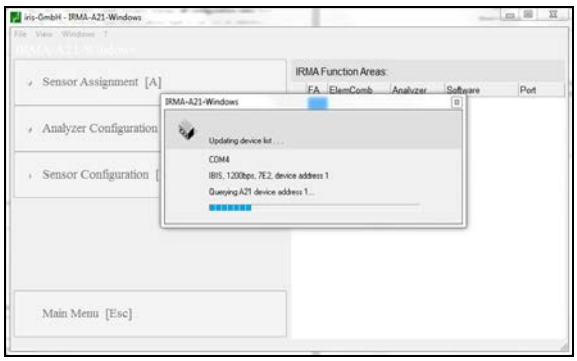


Figure 57: Renewed device query after configuration

Wait until the renewed device query is concluded:

You are now back in the main menu where you perform the last step of the installation - "Programming".

3.5.2 Editing of configuration data with IRMA 3D (distance sensors) and with IRMA BASIC CAN

In the Editing main menu (shortcut E) there are the three subitems - **Sensor Assignment** (shortcut A), **Analyzer Configuration** (shortcut Alt + E) and **Sensor Configuration** (shortcut

Strg + E). Open the Sensor Assignment and Analyzer Configuration programs via the service interface **C**. The Sensor Configuration must be opened via the CAN USB converter **only**.

Sensor Assignment

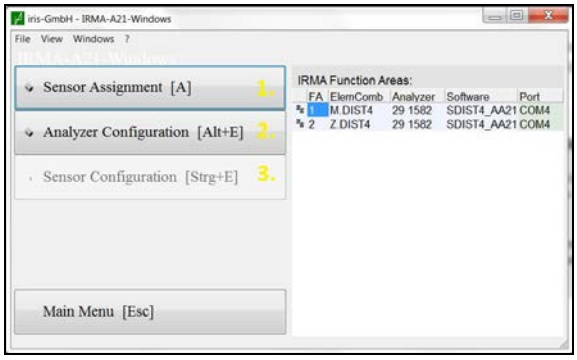


Figure 58: Subitems of Editing for IRMA 3D

First assign the sensors:

Click on Sensor assignment or the shortcut A → "IRMA Assign" opens.

The sensors must be assigned once, otherwise they will not be operative.

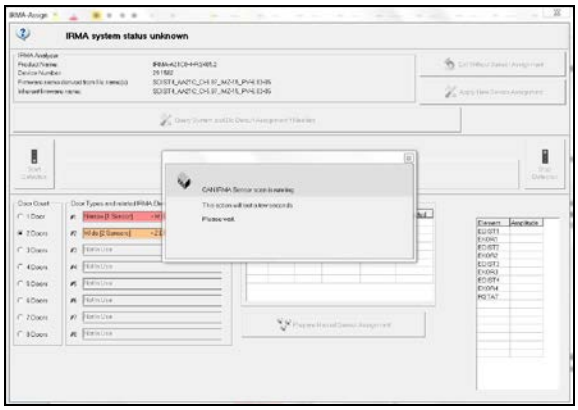


Figure 59: IRMA-Assign

Wait until "IRMA-Assign" has found the connected CAN IRMA sensors.

Optional:
Check the communication path and parameters (interface, protocol, Baud Rate, device address) via “Query system and assign sensors by default, if necessary”.

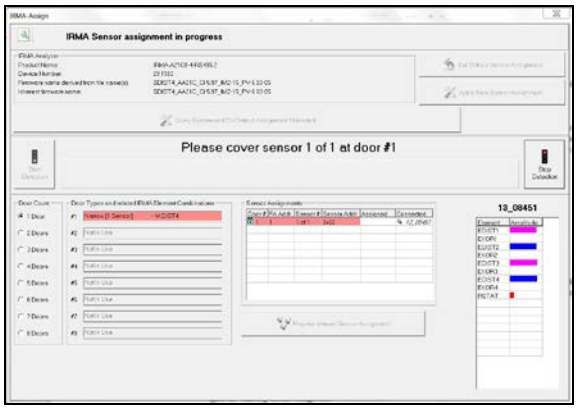


Figure 60: Starting sensor recognition

First click on START RECOGNITION,

then follow the instructions in "IRMA Assign", masking the sensors as shown.

("Sensor 1 of 2")

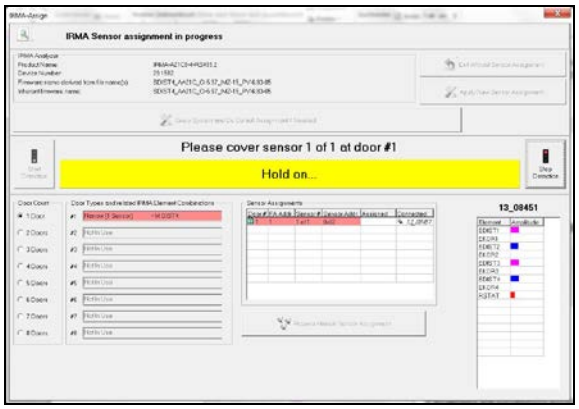


Figure 61: Continuing to mask the sensor

Wait until the yellow bar "Please continue masking" changes into the green bar "Identified as [..]".

Repeat for all sensors.

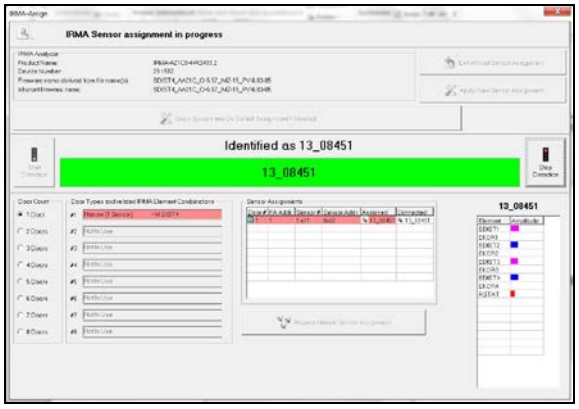


Figure 62: Sensor assignment already performed

Ideally all sensors are already assigned when you open "IRMA-Assign".

To make sure, please run through sensor masking with each of the sensors.

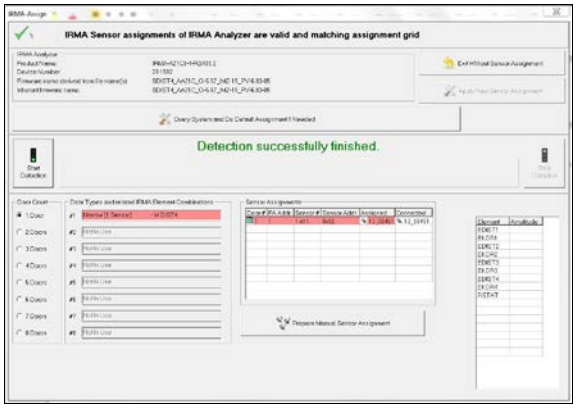


Figure 63: Sensor assignment successfully concluded

If all sensors are successfully assigned, a green checkmark with positive message will appear in the upper window field.

Close "IRMA-Assign" and open "Analyzer Configuration" (Figure 65).

Analyzer configuration

"IRMA A21 Configuration Assistant" reads out and displays all configuration data from the analyzer. Depending on the analyzer type and/or sensor type in use, not all selection options are available and can be edited at all times (those not available are shown greyed).

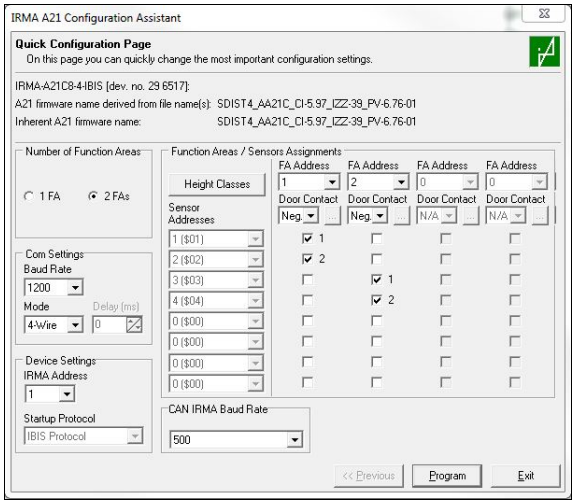


Figure 64: Analyzer configuration for IRMA 3D

The following configuration data are shown:

- Number of counting zones **(Number of Function Areas)**: 1 or 2
- **Com Settings:**
  - **Baud Rate**: 1200 (recommended), 4800, 9600,14400, 19200, 38400, 57600, 115200
  - **Mode**: 4-wire (IBIS), 2-wire (J1708)
  - **Delay** (ms): delay to the answer of the analyzer to call data sets addressed to it (available only for 2-wire)

- Device addresses **(Device Settings)**: = number of analyzers in the vehicle
  - **Startup Protocol**: pre-set depending on the analyzer software
- **Function Areas / Sensor Assignments**
  - Door address **(FA Address)**: pre-set, automatic and consecutive door address numbering
  - **Door Contact**: Neg. (logically negative) is pre-set and recommended (0 V in the vehicle = door status open); Pos. (logically positive) (24 V = door status open)
- **CAN IRMA Baud Rate:** 500 (standard); set the Baud Rate which all system components of the IRMA 3D counting system use for communication

Figure 65: Program button in the Assistant for IRMA 3D

If all configuration data are correct, click on PROGRAM.

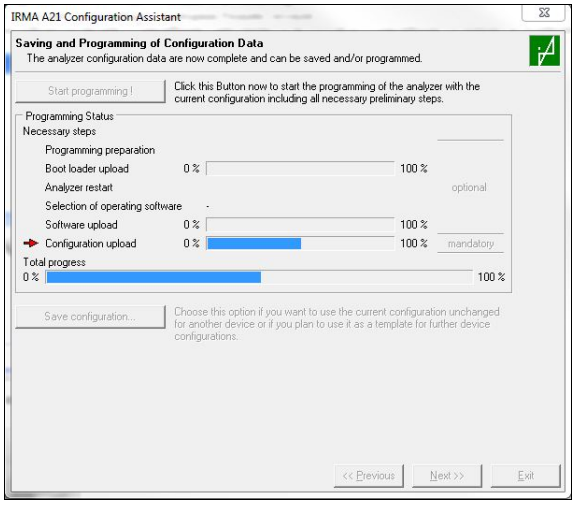


Figure 66: Window for configuration of IRMA 3D

Wait until the configuration is concluded.

The process "Saving and Programming Data" is shown in the separate window of the configuration process.

When the blue bars "Configuration upload" and "Total progress" are both at 100%, click on EXIT at the bottom right in the window → A new device query starts.

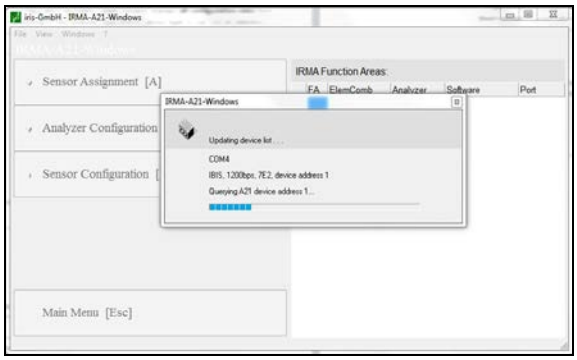


Figure 67: Renewed device query after configuration

Wait until the renewed device query is concluded:

You are now back in the main menu where you perform the last step of the installation - "Sensor Configuration".

Sensor configuration (CAT)

The CAT (CAN Address Tool) is available here in the customer version. This means that here

- a change of the sensor Baud Rate
- assignment of the sensors to the FAs (door areas)

can be performed.

The "Sensor Configuration" function under "Editing" is a special feature of IRMA 3D. The IRMA DIST4.08 family is the prerequisite to using CAT version 3.2.
The sensor configuration can **only** be performed via the **CAN USB converter**: "CAT" (CAN-Address-Tool) opens.
For this purpose connect the CAN USB converter to the CAN BUS of IRMA 3D (see p. 14).

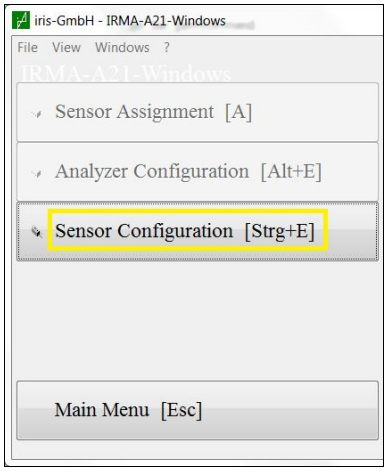


Figure 68: Subitem Sensor Configuration

Click on “Sensor Configuration” of the shortcut Ctrl + E → CAT (CAN Address Tool) opens.

(As the CAN USB converter is connected as the only interface, the other two subitems are shown greyed).

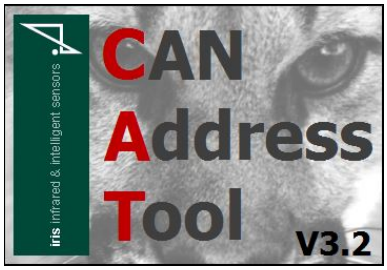


Figure 69: CAT

Wait until the CAT (version 3.2) screen automatically changes to the "IRMA CAN Address Tool" configuration window.

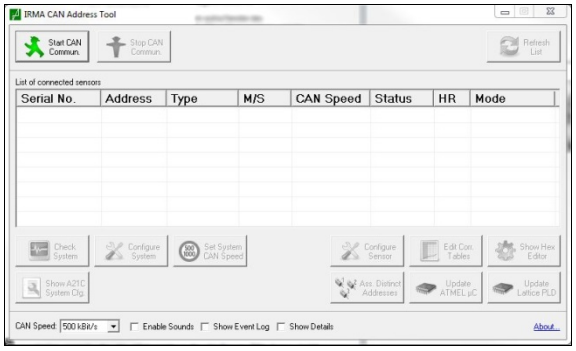


Figure 70: Window of IRMA CAN Address Tool

The following settings can be made:

- Sensor query (stop) **(Start /Stop CAN Comm.)**
- System check **(Check System)**
- System configuration **(Configure System)**
- Selection of Baud rate **(Set System CAN Speed)**
- Display of A21C configuration **(Show A21C-System Cfg.)**
- Enable audio **(Enable Sounds)**
- Display of results log **(Show Event-Log)**
- Display of details **(Show Details)**

The functions shown greyed at the bottom right are part of the expert mode and therefore not enabled. Only the buttons on the left are enabled, as this is the customer mode and they are relevant to these instructions.

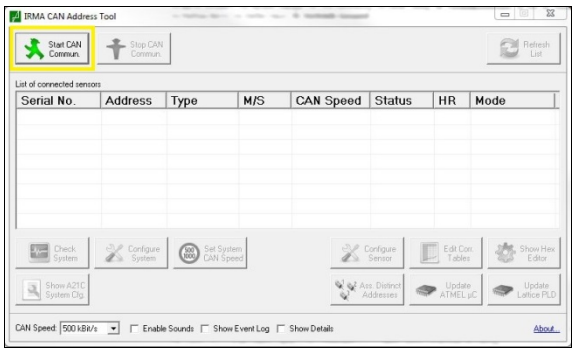


Figure 71: Start CAN Communication in CAT

Click on START CAN COMM. → DIST4 sensors figure on the "List of connected sensors".

To stop the CAN query, click on the adjacent button STOP CAN COMM.

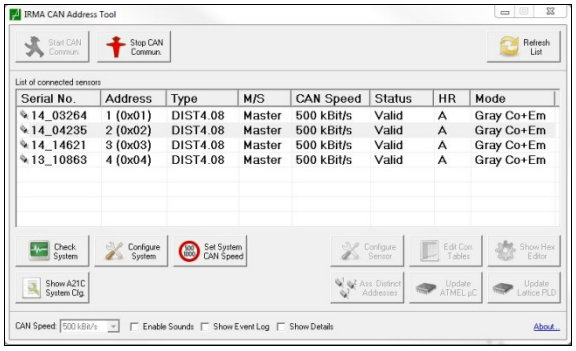


Figure 72: List of connected sensors in CAT

Check the sensors displayed for the correct number to make sure that all connected sensors were recognized by CAT.

The list details were read out from the sensor firmware. The CAN Baud Rate can be edited and/or configured again subsequently.

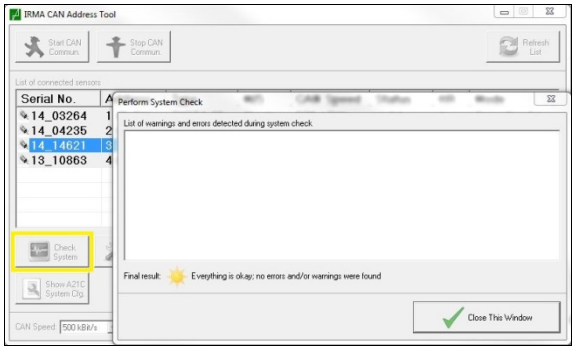


Figure 73: Check System in CAT

Click on CHECK SYSTEM on order to find potential errors of the present system configuration → The external window "Perform System Check" opens, showing a sun and a positive message if there are no errors.

Close the separate window by clicking on CLOSE THIS WINDOW.

Figure 74: Show A21C System Config. in CAT

Click on CONFIGURE SYSTEM to perform the semi-automatic configuration for the assignment of the sensots to the door areas →

The function areas (door addresses) open in accordance with the expected number of sensors and their addresses. For simpler use each of the function areas is shown in another colour.

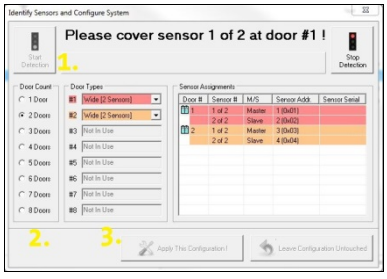
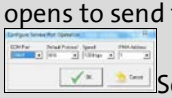


Figure 75: Configuration display

If an analyzer is not visible via the CAN bus, CAT offers the possibility of a configuration display via the RS232 cable (service interface **C**). Before, a dialogue window opens to send the communication parameters to CAT.



Select the correct parameters and click on OK.

1. First click on START DETECTION.
2. Select the door numbering of the door areas (here "Doors 1 + 2"). 3. Select the numer of sensors / door area (here "Wide / 2 sensors").
Then observe the instructions in the top window field.

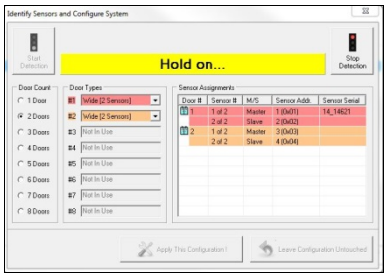


Figure 76: Ensure sensor masking

Perform the following routine with all connected sensors:

ensure masking of the sensor in question,

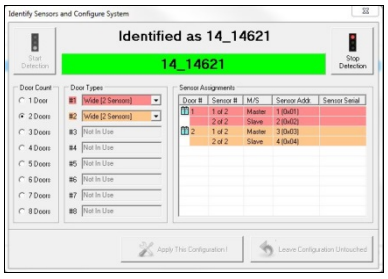


Figure 77: Sensor identification performed

until a sensor identification message is shown, highlighted in green.

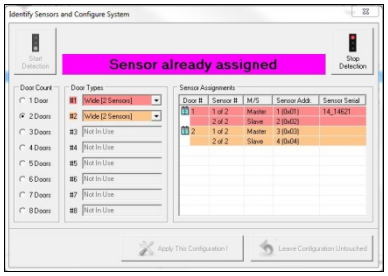


Figure 78: Sensor identification

or a positive message appears, highlighted in violet: the sensor was already assigned.

Finally click on APPLY THIS CONFIGURATION.
If the following text is displayed in the top window field: **Detection successfully finished.** , sensor assignment was successful.
Close the configuration display by clicking on CLOSE THIS WINDOW.

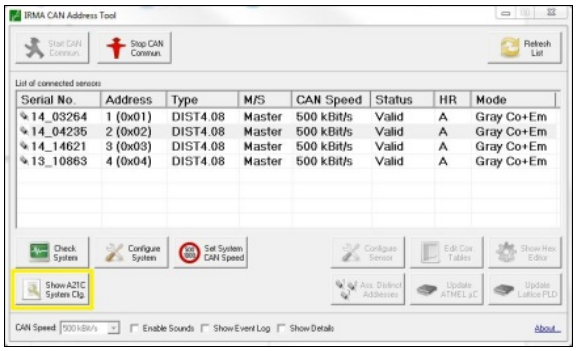


Figure 79: Show A21C System Cfg. in CAT

Click on SHOW A21C SYSTEM CFG to get an overview of the analyzer firmware parameters.→ The number of sensors and their door areas are showed in different colours in a separate window to "Show Current A21C Configuration".

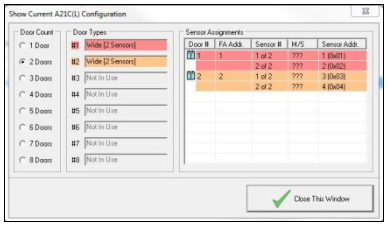


Figure 80: Show Current A21C Configuration

Click on CLOSE THIS WINDOW to close "Show Current A21C Configuration".

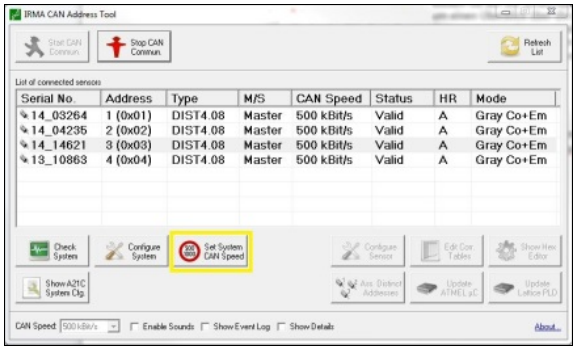


Figure 81: Set System CAN Speed

All CAN bus components (sensors, analyzer, CAN USB converter, etc.) must communicate with the **same** Baud Rate; otherwise there will be various communication errors and disturbances.

Click on SET SYSTEM CAN SPEED to determine the Baud Rate.

The Baud Rate should remain **unchanged** as the analyzer and sensors are supplied by iris-GmbH in their correct configuration. Only change the Baud Rate if you have sufficient knowledge of the entire CAN bus in the vehicle and a change is really necessary.

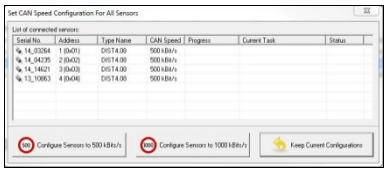


Figure 82: Selection of Baud rate

If a reconfiguratin of the system Baud Rate is really and urgently required, please determine the new sensor Baud Rate in the separate window "Set CAN Speed Configuration For All Sensors":
500 kBits/s (0.5 MB/s) or 1000 kBits/s (1 MB/s)

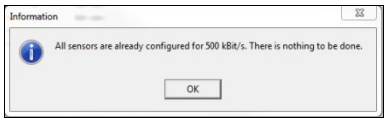


Figure 83: Set System CAN Speed Baud Rate already set

Depending on the pre-setting (mainly **500 kB**) one of the two following messages is displayed:

- Baud Rate setting already done. Take no more action.

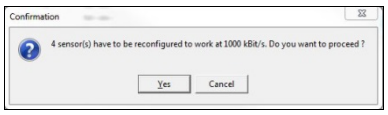


Figure 84: Set System CAN Speed Change Baud Rate

- The Baud Rate change is implemented. Do you want to continue?

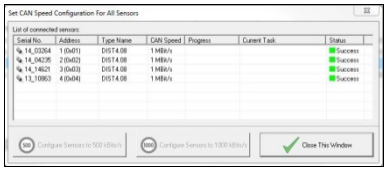


Figure 85: Status "Success" in Set System

In the separate window "Set CAN Speed Configuration For All Sensors" a green box appears in the status column as well as "Success" in case of successful change of the Baud Rate.
Now click on CLOSE THIS WINDOW.

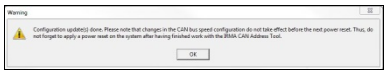
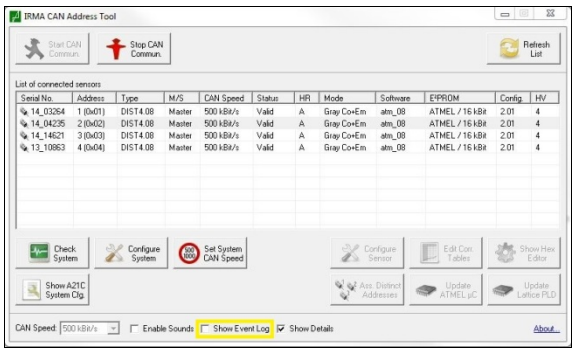


Figure 86: Warning message on current supply interruption

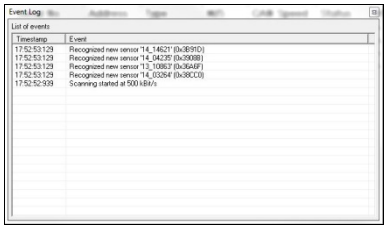
Simultaneously a warning dialogue window opens, indicating the performance of a power reset (power supply interruption of the analyzer).

The Baud Rate change will not become active before this action. Please interrupt the power supply of the analyzer (power supply **P**) for a short time and reconnect the power subsequently.



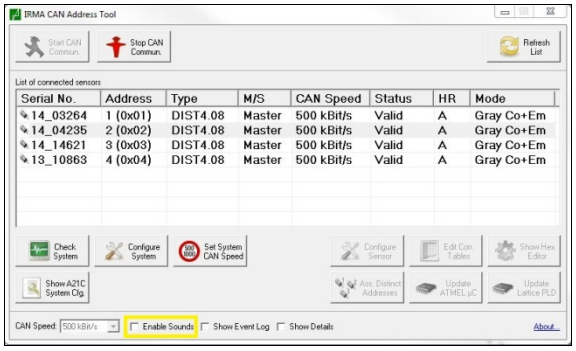
For a chronological and comprehensive display of information on sensor recognition mark the "Show Event Log".

Figure 87: Show Event Log



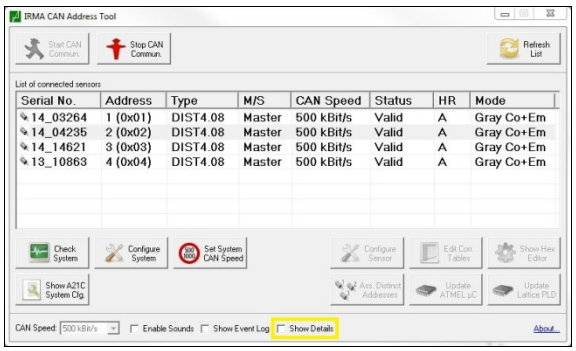
For a detailed problem search in sensor recognition please refer to the Event Log window for relevant information. With "Show Event Log" unchecked, the event log window is no longer displayed.

Figure 88: Event Log window



As a precaution, you will be hearing an audio signal in the event of sensor recognition or sensor removal. Please check "Enable Sounds". Then the confirmation sounds will be played. (Unchecking accelerates sensor recognition)

Figure 89: Enable Sounds



Check "Show Details" if you want to have more information showed in the list (firmware, E²PROM, etc.).

Figure 90: Show Details

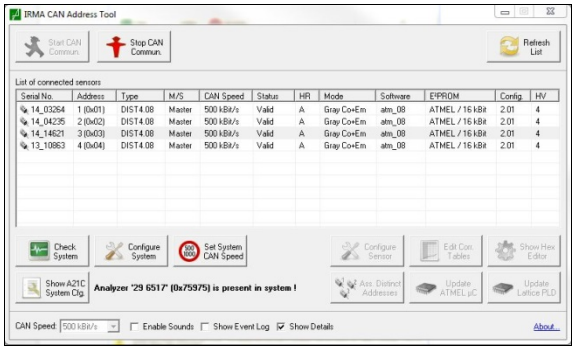


Figure 91: Detail display

The font size is reduced so that other parameters can be shown in the list table of the sensors recognized.

Uncheck "Show Details" for less information.

3.6 Loading firmware

The menu item "Progamming" (shortcut P) serves to perform **two** processes:

- **Update:** Updates the firmware already loaded on the analyzer/s to a new version
- **Booting:** Program the analyzer by "booting" the firmware

Connection to be used on the analyzer:
Booting is **only** possible via the service interface **C** of the analyzer.

3.6.1 Update

The device query must have been made before, otherwise "Update" is shown greyed and is thus disabled.

The update can only be made in cooperation with the Technisches Zentrum (TZ - Technical Centre) of iris-GmbH, as TZ has access to the firmware. For the firmware to be loaded please contact: service@irisgmbh.de

Program routine

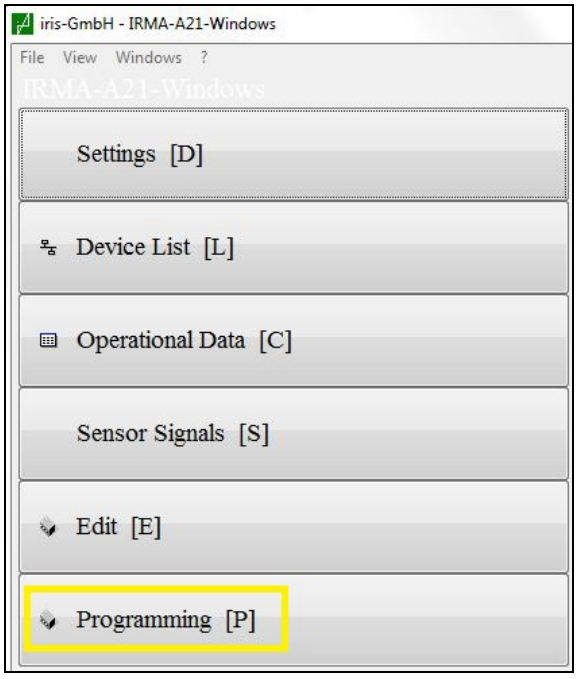


Figure 92: Programming

Open “Programming” in the main menu:

by clicking on “Programming” or the shortcut P → this takes you to the menu subitem of "Programming" where you can select either "Update" or "Booting".

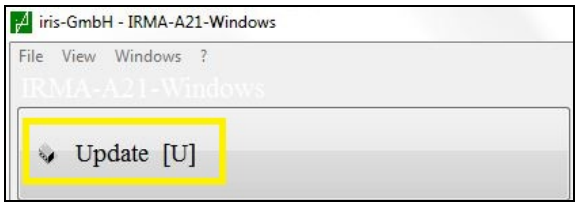


Figure 93: Programming option Update

Open Update:

by clicking on “Update” or the shortcut U →

a separate window for confirmation of the communication path and analyzer parameters opens.

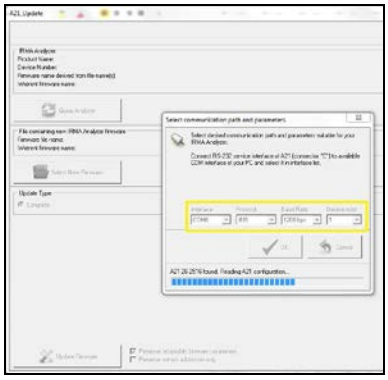


Figure 94: Update: Parameter window

Confirm that the pre-set field contents are correct:

If the field contents framed in yellow in Figure 96 are correct, click on OK. Or correct the field content if the information does not correspond to the communication path and parameters of the analyzer.
Then click on OK → A separate window for reading out the field content opens.

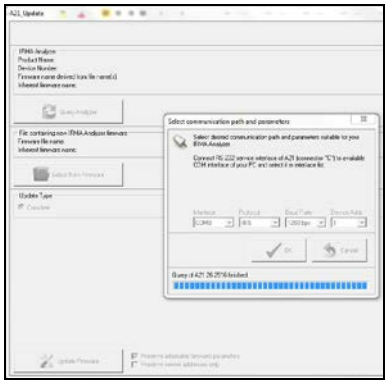


Figure 95: Separate window for reading-out

Wait until the reading operation is finished:

As soon as the blue bar in the separate window is at 100%, the reading-out of the communication path fixed and the parameters fixed was successful → the separate window closes automatically.

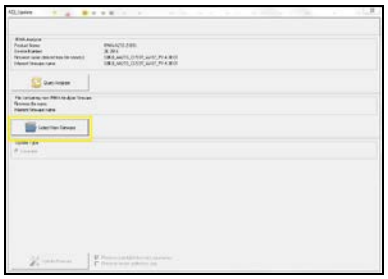


Figure 96: Updating window

After receipt of the firmware from iris-GmbH:

Load the firmware update:

Click on “Select New Firmware” → a separate window for uploading the new firmware file opens.

Figure 97: Selection and upload of the new firmware

Select the firmware required:

Select the **firmware file** which had been loaded from iris-Aktuell > ASI into an offline folder of the PC **before**.

For the updating operation you must have received the firmware to be loaded from an employee of the Technisches Zentrum of iris-GmbH **before** and stored it in an easily accessible offline folder of your PC. The firmware file to be loaded must bear the file extension .HEX.
If you have questions please contact iris-GmbH directly: service@irisgmbh.de.

Figure 98: Last step of the update

Now update the firmware:

Retain the checkmark with "Retain adjustable firmware parameter" and click on UPDATE FIRMWARE → during the update of a separate window, "Log window of A21_Update" opens and closes automatically afterwards.

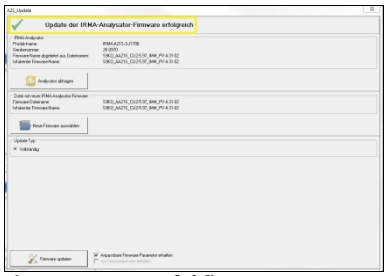


Figure 99: Successful firmware update

The update is almost complete. Check the status message after the update.

The status message framed in yellow gives a binary answer, depending on the successful or failed performance of the firmware update.

Failure of a firmware update (in most cases) results from the selection of an unsuitable software program. Repeat the update starting from Figure 98.

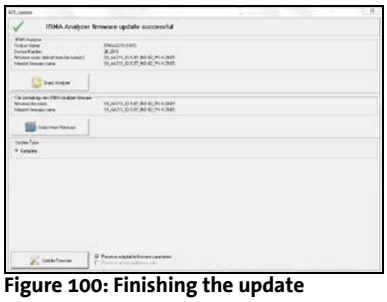


Figure 100: Finishing the update

Close the update window:

If the dialogue window pops on: Click OK → the programming window opens, automatically querying the device in advance.

Figure 101: Programming window with renewed device query

Wait until the repeated device query is concluded.

On conclusion of the renewed device query only the programming window is visible with the options UPDATE and BOOTING.

→ The update is now **finished**.

3.6.2 Booting

Booting can only be made in cooperation with the Technisches Zenrum (TZ - Technical Centre) of iris-GmbH, as TZ has access to the firmware. For the firmware required please contact: service@irisgmbh.de

Program routine

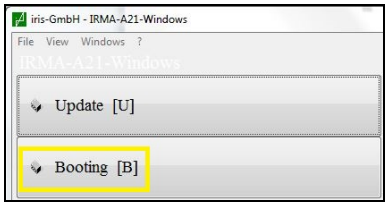


Figure 102: Booting programming option

Open the Booting program:

by clicking on “Booting” or the shortcut B → a separate window "A21_Boot_2.5.9.22" opens.

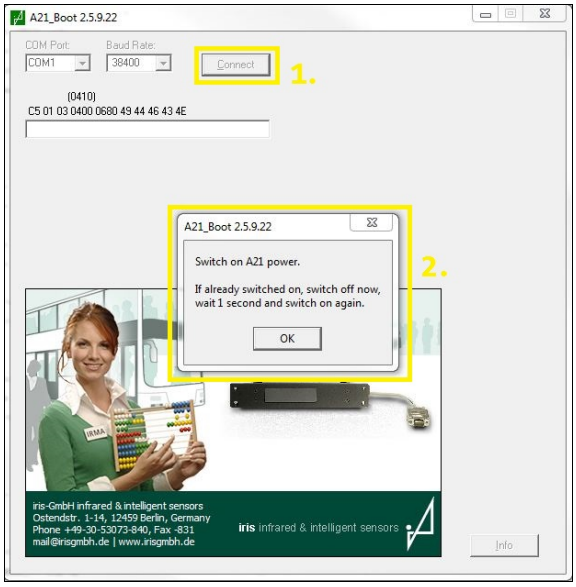


Figure 103: Preparation of booting

Follow the consecutively numbered steps in Figure 106:

First click on CONNECT → A dialogue window opens asking to switch the analyzer (off) on:

Interrupt the power supply (**P**) of the analyzer for a second and and then reconnect the powerm supply. The LED at the analyzer lights up orange.

Click on OK in the dialogue window; the LED lights up green again → An uploading window opens for the selection of new firmware.

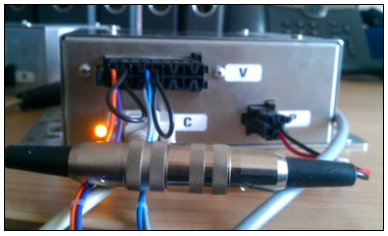


Figure 104: Orange LED on the analyzer after switch (off) on

Switch the analyzer (off) on in all cases as otherwise the analyzer will not be initialized for booting.

The analyzer LED lights up orange between the switch-(off) on and the confirming click on OK in the dialogue window.

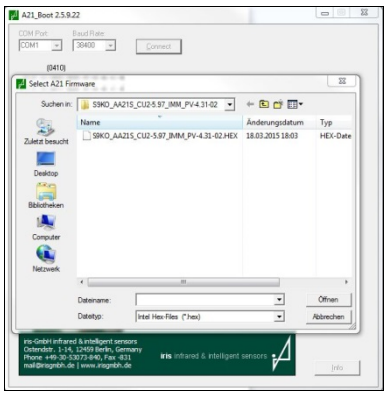


Figure 105: Selection and upload of the new firmware

After receipt of the firmware from iris-GmbH

Select the firmware required:

Select the **firmware file** which had been loaded from iris-Aktuell > ASI into an offline folder of your PC **before**.

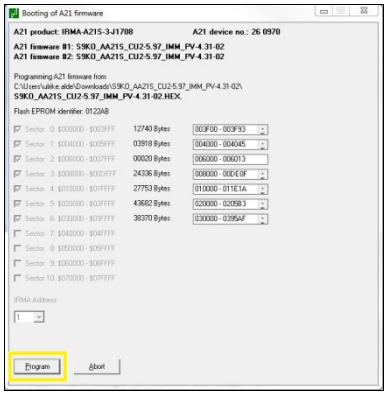


Figure 106: Booting with new firmware

Boot the analyzer with the new firmware:

Click on PROGRAM → two bars open in the window at the bottom right.

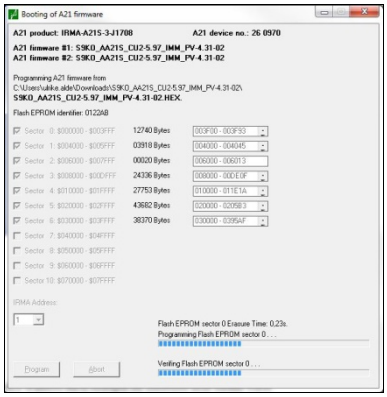


Figure 107: The booting process

Wait until both bars are fully filled in:

Both bars "Flash EPROM2" and "Verifying Flash EPROM" will pass through their entire length several times before they reach 100%.

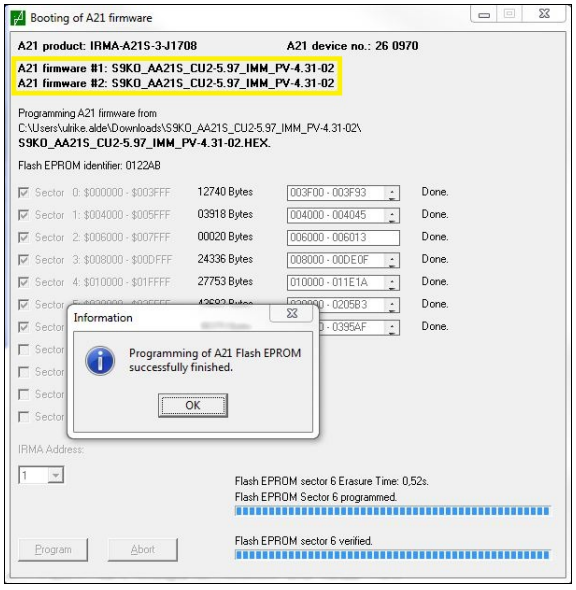


Figure 108: Booting successfully finished

Confirm the successful conclusion of booting:

Click on OK in the "Information" dialogue window.

The names of the old firmware #1 and of the new firmware #2 which was loaded to the analyzer during booting are framed in yellow.

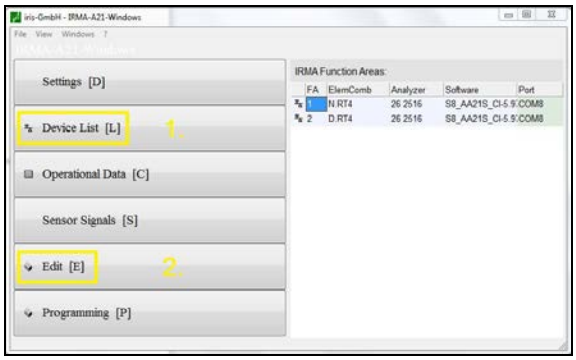


Figure 109: Renewed device query and editing

Important note: After booting you must re-edit the analyzer:
For this purpose open the main menu items "Device list" and "Editing" and proceed as decribed in chapters Query of the device list (p.19) and Display of the sensor signals (p.26).

→ Now booting is **finished**.

Now you can close the Service Software by clicking on the red x button in the top right corner of the window.