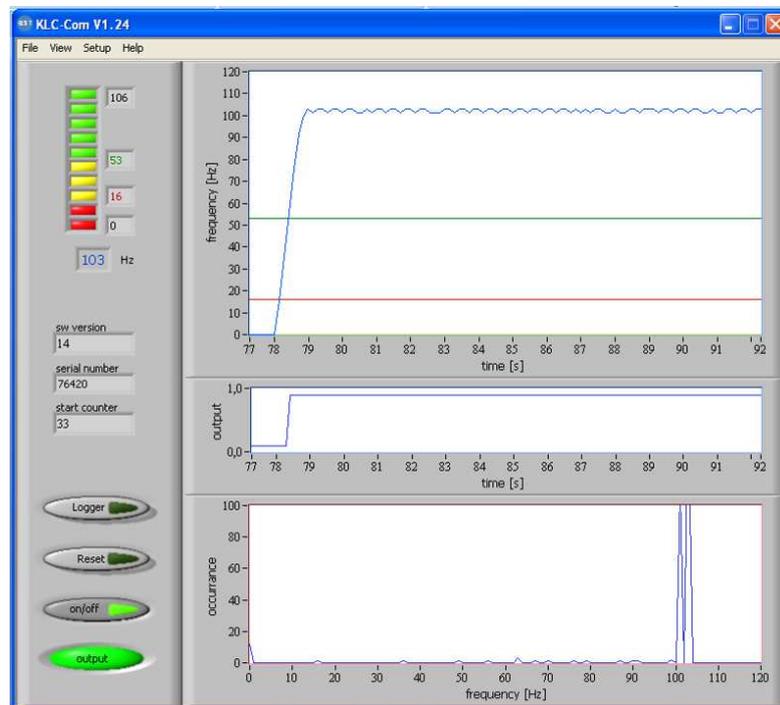


Original Operating Instructions Diagnostic tool KLC-Com V1.24 for KLC 2002 and KHM 100

Type: KLC-Com

Document: BA KLCcom EN Rev 2



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1 General aspects

1.1 Introduction

This operating instruction is a helpful guide for ensuring the successful and safe operation of the diagnostic tool KLC-Com. It contains important information on how to operate the system safely, correctly and efficiently.

All illustrations and drawings in these operating instructions are shown for illustration purposes and do not contain details for design.

The operating instructions always have to be accessible at the device. They have to be read and applied by each person who is required to work with/on the devices KLC 2002 and/or KHM 100.

This work may involve, for example:

- operation
- troubleshooting during operation
- servicing
- maintenance (upkeep, inspection, repair) and/or
- transport

This should be confirmed by the operating company in writing.

1.2 Warning notes

The following warning notes are used in these operating instructions:

⚠ DANGER

This warning level indicates an imminent hazardous situation.

If the hazardous situation is not prevented, this will result in death or severe injury.

Follow the instructions that accompany this warning to prevent the risk of death and severe personal injury.

⚠ WARNING

This warning level indicates a potentially hazardous situation.

If the hazardous situation is not prevented, this may result in death or severe injury.

Follow the instructions that accompany this warning to prevent the potential risk of death and severe personal injury.

⚠ CAUTION

This warning level indicates a potentially hazardous situation.

If the hazardous situation is not prevented, this may result in slight or moderate injuries.

Follow the instructions that accompany this warning to prevent the injury of persons.

CAUTION

This warning level indicates potential damage to property.

If this situation is not prevented, it may result in damage to property.

Follow the instructions that accompany this warning to prevent damage to property.

NOTICE

A notice indicates additional information that will make the handling of the device easier.

1.3 Copyright protection

These operating instructions have to be treated as confidential. They may only be used by authorised staff. Access by third parties may only be granted upon written agreement of BST Solutions.

All documents are protected by German copyright law.

The disclosure and reproduction of documentation, in whole or in part, as well as the exploitation and communication of its content shall not be permitted unless expressly stated otherwise. Offenders are liable for prosecution and the payment of damages.

We reserve all rights to exercise industrial property rights.

1.4 Disposal information

The diagnostic tool is equipped with electrical and electronic components and must be disposed separate from household waste. Follow the local and actual regulations for waste disposal.



1.5 Warranty

Read these operating instructions carefully and in full before operating the diagnostic tool KLC-Com!

The manufacturer is not liable for damage or operating malfunctions that result from the operating instructions not being observed.

The operating company has to supplement the operating instructions with operating instructions on the basis of national regulations on accident prevention and environmental protection, including information on supervision and notification requirements with respect to special operating circumstances, e.g. regarding organisation of work, working processes and staff deployed.

The recognised technical rules for safe and professional working also have to be observed in addition to the operating instructions and the regulations on accident prevention applicable to the country and place of use.

The warranty shall become void, for example, in the event of:

- inappropriate use
- use of impermissible equipment
- incorrect connection
- prior works that are not part of the supplied product or service
- non-use of original spares and accessories
- conversion, if this has not been approved by BST Solutions
- non-performance of specified maintenance work

NOTICE

It is recommended that the operator of the device concludes a service contract with BST Solutions. This guarantees that the device is regularly checked by our service staff and ensures that any required wearing and spare parts are available without long delivery periods.

1.6 Obligation of the operating company

The diagnostic tool KLC-Com may cause hazards if it is operated inappropriately or in an improper condition.

The operating company is under the obligation to operate the machine in proper state only. The operating company has to secure hazardous areas that exist between BST devices and the customer's own equipment.

The operating company has to appoint and instruct responsible staff:

- Only deploy trained or instructed staff.
- Clearly set out the responsibilities of the staff with regard to operation, set-up, maintenance and repair.
- Regularly check that staff are safety conscious and aware of hazards and are observing the operating instructions.
- Before starting work, staff who are assigned to work with/on the device have to have read and understood the operating instructions, in particular the chapter on "Safety", as well as the relevant regulations.
- The operating instructions and relevant regulations have to be stored in such a way that they are accessible to operating and maintenance staff.
- Set out who will have responsibility for device operation and ensure that this person has the authority to overrule any unsafe instructions of third parties.

NOTICE

Generally valid legal and other binding regulations on accident prevention and environmental protection have to be observed and instructed, in addition to the operating instructions.

1.7 Liability disclaimer

All technical information, data and guidance on device operation that are contained within these operating instructions are, to the best of our knowledge, correct at the time of printing, taking into account our present understanding and experience.

We shall not be liable for damages during installation or use of the software.

We reserve the right to make technical changes with respect to the further development of the flame amplifier outlined in these operating instructions. No claims can be made based on the specifications, illustrations and descriptions of these operating instructions.

We shall not be liable for damage or operating malfunctions that result from operating errors, inappropriate repairs or the non-observance of the operating instructions. We expressly state that only original spare parts and accessories approved by us may be used. This also applies to the components of other manufacturers that have been used.

The installation or use of non-approved spare and accessory parts and any unauthorized retrofits and modifications are not permitted for safety reasons and exclude any liability by BST Solutions for consequential damages.

BST Solutions is liable for possible errors or omissions with the exclusion of additional claims entered into in the framework of the warranty obligations conceded to in the contract. Claims for damages, on whatever legal basis they may be, shall be excluded.

Translations into foreign languages are carried out in good faith. We cannot accept any liability for translation errors; this also applies where the translation has been carried out or has been commissioned by us. The original text alone shall be binding.

Descriptions and illustrations do not necessarily depict the delivered product or a possible spare parts order. Drawings and graphics are not to scale.

1.8 Declaration of conformity

BST Solutions GmbH
 Eggerscheidter Strasse 57
 D-40883 Ratingen
 Germany

Declaration of Conformity in accordance with EC-Directives

This is to confirm that the below described system in its design and type of construction complies with the provisions of the Directive of the Council of the European Communities on the approximation of the laws of the member states relating to

Low-Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC

This declaration of conformity of the European Communities is the result of an examination of the TD Department of BST Solutions in accordance with the European Standards. If the system will be changed without our approval this declaration will become invalid.

Description of the system:	Diagnostic tool KLC-Com
Part type:	USB-Interface and optical adapter
Directives:	2006/95/EC, formerly 73/23/EWG 2004/108/EC, formerly 89/336/EWG
Applicable European Standards:	EN 55022 EN 60664-1 EN 61000-4
Date / Manufacturer signature:	2011-10-16 <i>E. Röllecke</i>
Function of the signatory:	CEO

1.9 Address of manufacturer

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2 Safety

2.1 Intended use

The diagnostic tool KLC-Com can only be use for the following devices :

- KLC 2002
- KHM 100

KLC-Com is reading from the devices above data like serial number, the generated measurement data and the status of the flame detector and shows all this information on the screen. Additional to this it indicates the presence of disturbing frequency cut off and the status of the flame relay output.

Because of this it is possible to analyze the flame signals. The intensity and the frequency of the flame signal are shown on the screen and can be stored via data logger function to the hard disk and can be processed further with programs like MS-Excel.

▲WARNING

Danger when improperly used !

The device may cause hazards if it is not used as intended and/or for any other purposes.

The device has to be used only for the purposes for which it is intended.

The procedures described in the operating instructions have to be observed.

The manufacturer/supplier shall not be liable for damage resulting from use for non-intended purposes. The user/operating company alone shall bear the risk.

2.2 Requirements on persons

NOTICE

Work on/with the device may only be performed by persons authorized to do so based on their training and qualification. Furthermore, such persons have to have been commissioned by the operating company.

Do not allow any persons who are being apprenticed, educated, instructed or on a general training programme to work on the device without the constant supervision of an experienced person.

Persons who are under the influence of drugs, alcohol or medication that affects reactivity shall not be permitted to carry out work on the device.

Connection, set-up, maintenance and repair work may only be carried out by qualified specialist staff.

This device may cause hazards if it is operated inappropriately by untrained staff or if it is not used for its intended purpose.

Generally valid legal and other binding regulations on accident prevention and environmental protection in addition to basic health and safety requirements have to be observed. The operating company has to instruct its staff accordingly.

2.3 Safety instructions

The following instructions on accident prevention have to be observed when operating the Wide band flame detector KLC 2002 or KHM 100.

NOTICE

Only operate the device if it is in a proper state !

- Do not remove or disable safety devices.
- Check for externally noticeable damage and defects prior to using the device ! Immediately notify the appropriate authority/person of any changes that occur (including changes in operating performance). If necessary, stop and secure the device immediately.
- Allow only authorised specialist staff to carry out set-up and/or maintenance work.
- Replace worn or defective parts.
- Use suitable maintenance tools only.
- After repair work, refit all safety devices and carry out electrical and mechanical checks.
- Check the operating instructions for details of displays as well as switch-on and switch-off procedures.
- Prior to switching on the device, make sure that no-one can be endangered by the device !
- The operating instructions always have to be kept close to the device and be readily at hand.
- Any non-compliance with the safety instructions outlined in these operating instructions may lead to damage to property, personal injury or even death.

2.4 Safety devices

2.4.1 Fundamental aspects

Check the safety equipment and locking devices on the device for safe operational condition.

NOTICE

The device has been fitted with warning and danger signs for the protection of operating staff. These signs have to be observed. Damaged or illegible signs have to be replaced immediately.

2.5 Safety instructions in case of maintenance and troubleshooting

2.5.1 Fundamental aspects

- Deadlines set or indicated in the operating instructions for repetitive checks / inspections shall have to be observed !
- Appropriate workshop equipment is essential for performing maintenance work.
- In conformity with the electrical regulations, work on the electrical equipment of the system may only be carried out by an electrical specialist or by trained staff under the direction and supervision of an electrical specialist.
- The adjustment, maintenance and inspection activities and deadlines stipulated by BST Solutions, including information on the replacement of parts / assemblies, have to be observed! These tasks may only be carried out by authorised specialist staff.
- Operating and auxiliary materials as well as exchanged parts have to be disposed of in a safe and eco-friendly way.
- Spare parts supplied by BST Solutions or approved of by BST Solutions only may be used.

2.5.2 Electrical / electronic devices

⚠ DANGER

Danger to life caused by electrical current!

Contact with live wires or components presents a danger to life !

Prior to any work on the electrical equipment, disconnect the flame amplifying system from the power supply network !

NOTICE

In keeping with the electrical regulations, work on electrical / electronic parts / components may only be carried out by electrical specialists.

Important rules of conduct

- Check the device in regular intervals. Any defects or faults ascertained have to be corrected immediately. Switch off the device until the defects have been corrected.
- Equipment parts undergoing inspection, maintenance or repair work have to be made de-energised, if required. First check that the disconnected parts are no longer live, then short to earth. Also isolate neighbouring live parts
- If work is required on live parts, a second person has to be assigned who can disconnect the power supply in case of an emergency. Only use insulated tools !
- Fuses must not be repaired or bridged. Only use original fuses with the specified current !

2.5.3 Testing in accordance with the German Workplace Safety Ordinance (BetrSichV)

In case of the coupling or installation of devices from various manufacturers or suppliers, the operating company has to carry out a precise test, prior to start-up, in keeping with the German Workplace Safety Ordinance (BetrSichV) in force and the applicable electrical regulations.

In case of questions, please get in touch with BST Solutions.

3 Technical data

3.1 System conditions

Operating system	Microsoft Windows 2000 (incl. service pack 3), XP, Vista, Windows 7
Special software	Labview runtime engine 8.5, will be searched during the installation and if necessary installed.
processor	min. Pentium 200Mhz recommended: Pentium III or Celeron with min. 600 Mhz or a better processor
RAM	Min. 64 MB, recommended 256 MB
Hard disk	min. 80 MB (without installation of standard drivers, therefore it is recommended min. 580 MB)
Graphic solution	min. 800 x 600 pixel, recommended 1024 x 768 pixel
Needed rights during installation	administrator
Needed rights during application	non

3.2 Weight

USB-Interface with Optical adapter and cable	approx. 0.032	kg
Compact disc	approx. 0.088	kg

3.3 Dimensions

Interface

Length (with plug)	70	mm
Width	23	mm
Height	9	mm

Optical adapter

Cable length	1,5	m
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4 Transport, installation and connection

NOTICE

All installation and connection work may be carried out by qualified and approved specialist staff only !

Observe the legal stipulations and adjustment instructions of the plant operator !

4.1 Scope of delivery

- Compact disc with software KLC-Com and driver
- USB-Interface with optical adapter and cable
- Operating instructions (optional, customer dependend)

Refer to the order papers for the exact scope of delivery and compare with the delivery note.

Checking for completeness

Check the entire delivery for completeness against the accompanying delivery note. Please refer to our terms of sale and delivery otherwise.

Report any damage

After arrival of the device and accessories, notify the shipping agent, the insurance company and BST Solutions immediately in case of any damage caused by transport or inadequate packaging.

Take steps to minimise and prevent further damage.

Report the insurance case to the insurance company without delay and transmit the full claim documents at once in order to expedite the claims settlement (at the latest in sufficient time before the expiry of any periods of preclusion and/or limitation relating to the compensation claims against third parties).

4.2 Packaging

The diagnostic tool KLC-Com is shipped in different packaging materials.

The most frequently used packaging materials are cardboard and plastics (foils, foamed material).

NOTICE

Packaging must be disposed of in an environmentally friendly way and in accordance with the relevant provisions on disposal.

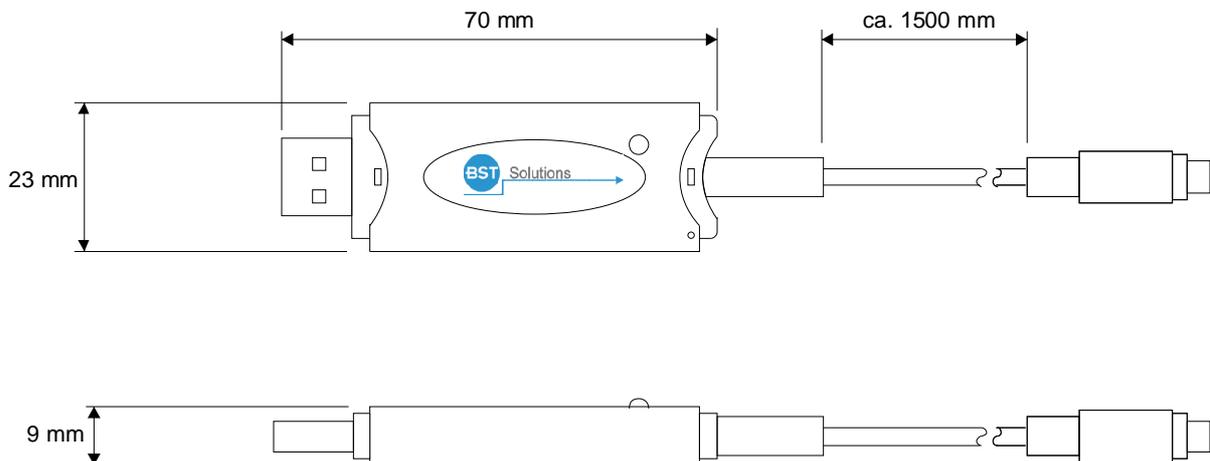
4.3 Shipping instructions

NOTICE

Do not subject the appliance to heavy impacts during transport. Do not subject the appliance to any humidity !

4.4 Dimensions of the interface

USB-Interface





4.5 Storage

Do not unpack any packed diagnostic tool set and accessories.

The following conditions apply to storage:

- Store in a dry place. Maximum relative humidity 95 %. In addition, It has to be assured that the floor in the storage area will remain dry throughout the storage period.
- Protect from direct sunlight. Storage temperature: -20°C to 70°C
- Store in a dustfree location.
- Avoid mechanical vibrations and damage.

5 Installation

NOTICE

All installation and connection work may be carried out by qualified and approved specialist staff only ! The legal regulations as well as adjustment instructions of the plant operator have to be observed !

5.1.1 Software installation

Load the compact disc to your computer. The software should start automatically. In case the installation did not started, the installation program can be started manually by entering the following: <CD/DVD-drive>/Installer_DE/volume/setup.exel. After that follow the instructions on the screen.

5.1.2 Change Language

The needed INI-Files are preinstalled in the subdirectory “..data” of the chosen installation path of “KLC-COM”. To change the language from German to English please rename the INI-File “KLC_COM_EN.INI” to “KLC_COM.INI”.

NOTICE

If you want to hold all possible languages please rename first the installed “KLC_COM.INI” to another name like “KLC_COM.OLD”.

5.1.3 Driver installation

The driver for VCP (Virtual COM Port) is located on the compact disc. Start only the executable file from the sub directory and follow the instructions.

NOTICE

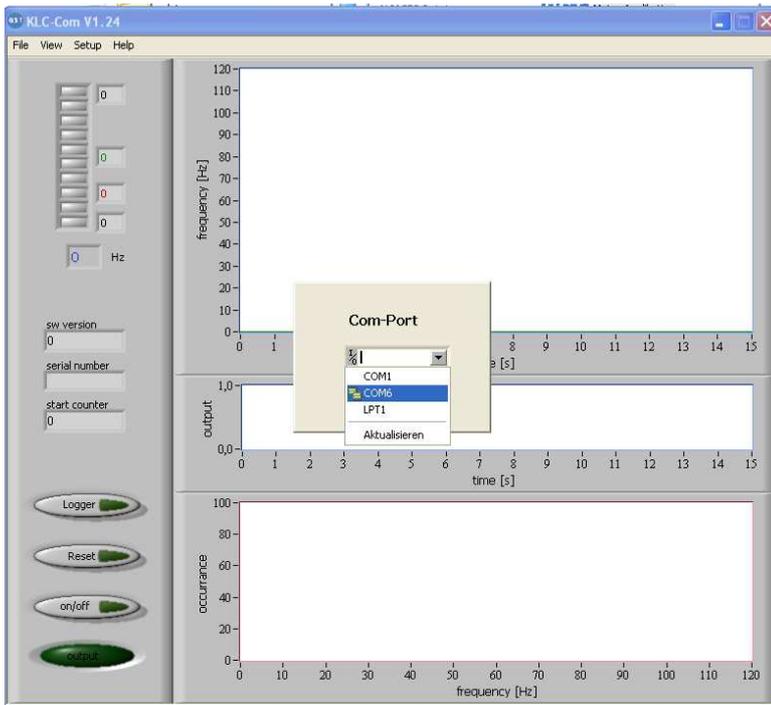
To ensure the actuality of the driver you should take a look on www.ftdchip.com from time to time. You will find the driver as an executable file . The version is coded in the name of the file “CDMxxxxx_setup.exe” (xxxxx = version).

5.1.4 Connecting the USB-Interface

Connect the USB-Interface with the USB-linterface of your computer or laptop.

5.1.5 Start software

After the program has started choose the menu item “Setup” to change to the correct interface. Scroll to the right one and press the OK-button.



This settings can be changed at any time. Therefore you have to open the “Settings”-menu and then use the item “Interface”.

In case the red LED at the USB-Interface isn't lit, change the selected interface number to another one until the LED starts flashing.

5.1.6 Connecting KLC 2002 or KHM 100

Please put the brass side of the optical adapter into the connector of the KLC 2002 or KHM 100. You'll find the connector above the device plug.



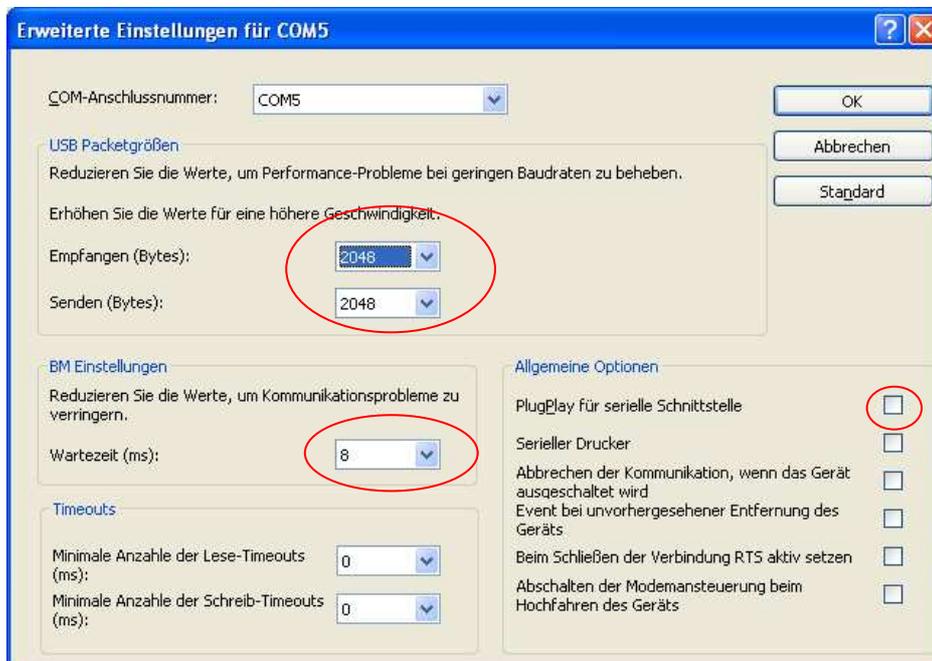
The moment the device is connected and supplied with power the data link starts and the LED on the interface starts to blink.

5.1.7 Adjust the COM-Port parameter

NOTICE

Sometimes it can be necessary to adjust the COM-Port parameter. The following adjustments should be made in the advanced COM-Port adjustments:

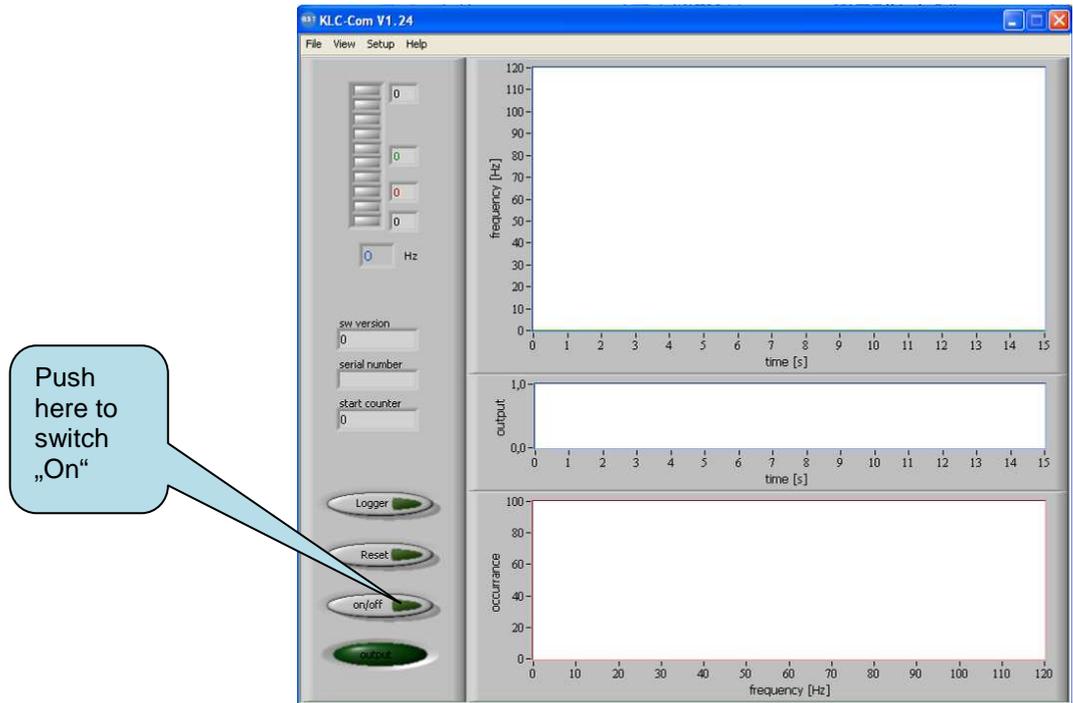
- USB package size for sending and receiving should be reduced to 2048 bytes
- Delaytime of the BM adjustment should be reduced to 8ms
- Disable the “plug&play”-option for the serial interface



6 Description

6.1 Start reading data

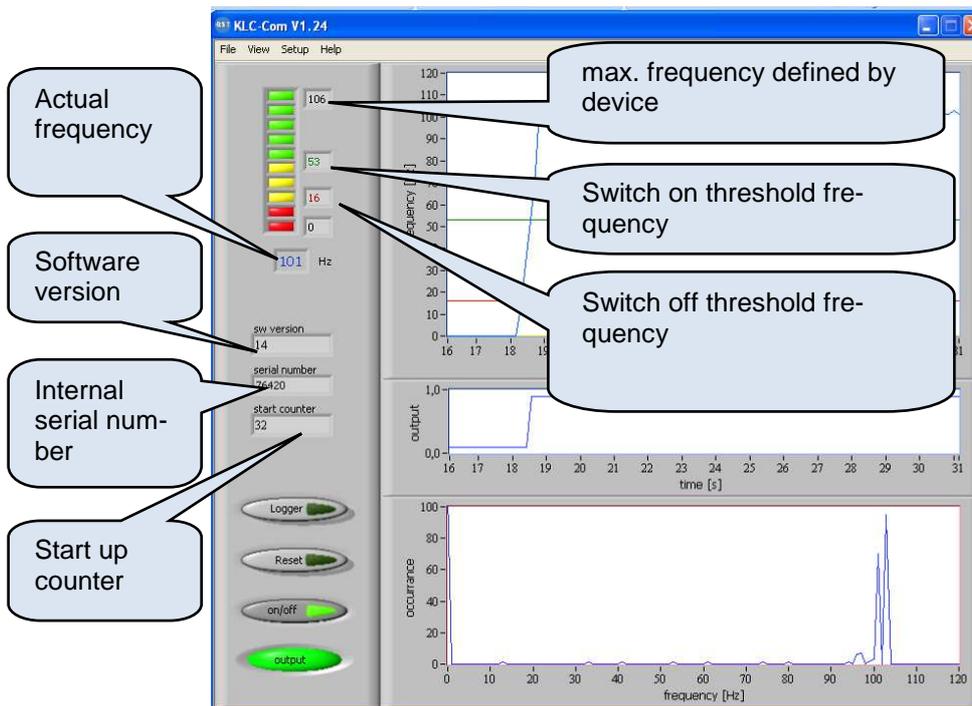
By pushing the button "On/Off" on the dark green side the programme starts reading data from the flame detector and the green light goes on.



6.2 Device specific data

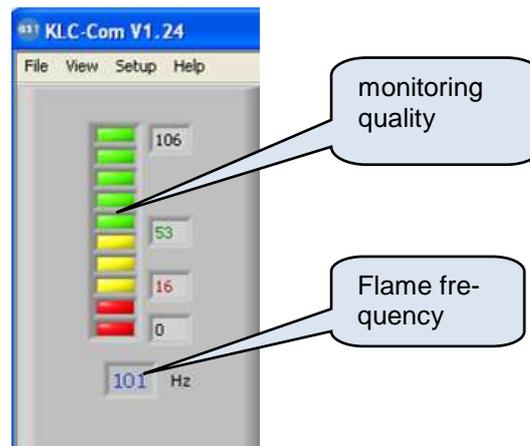
With the start of data transfer the program shows the following specific data:

- Software version
- Internal serial number (not identic with the printed number on the device)
- Start up counter (from version 10 upwards is a counter of flamesignals)
- Disturbing frequency cut off active or not
- max. Frequency defined by device and used for the max. Value of the bargraph
- switch on threshold frequency defined by device and change point from yellow to green bar segment
- switch off threshold frequency defined by device and change point from red to yellow bar segment



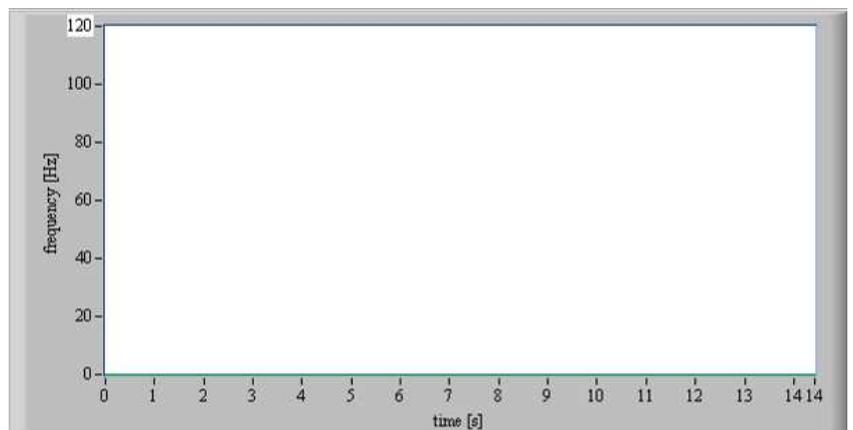
6.3 Indication of monitoring quality

Two indicators show the quality of the flame signal. The first one shows the frequency of the flame signal as a numeric value and the second displays the actual quality of the flame signal in a three coloured bargraph. Nevertheless, a definitive assessment of the supervision goodness is to be met with the help of the precise analysis of the frequency course.



6.4 Change the scaling

The scaling can be changed very simply. For this you select the maximum value or minimum value by a double click with the mouse and reach thus into the edit modus of this field. Now you can change the value. After you left the field the axis scales accordingly.

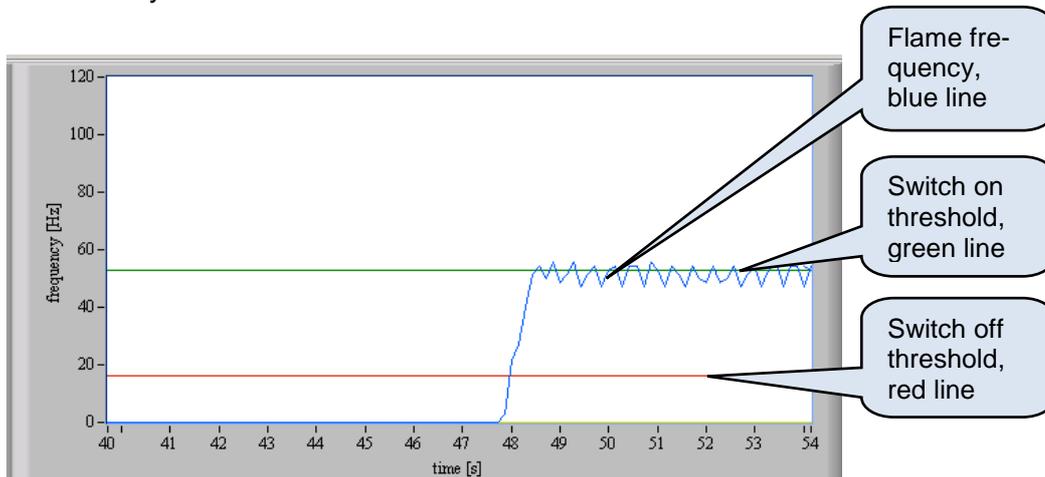


6.5 Graphical display of the flame frequency

There are three main windows shown at the program surface. The upper event window displays the chronological sequence of the flame frequency. The blue line shows the frequency diagram. It takes about 100 values to fill the diagram. That's equivalent to 14 seconds of measuring.

The green line stands for the switch on threshold of the flame relay. This level has to be exceeded once at least before the flame relay switches to "ON".

The red line shows the threshold of the flame off value. If the flame signal frequency sinking below this value the flame relay switches to "OFF".



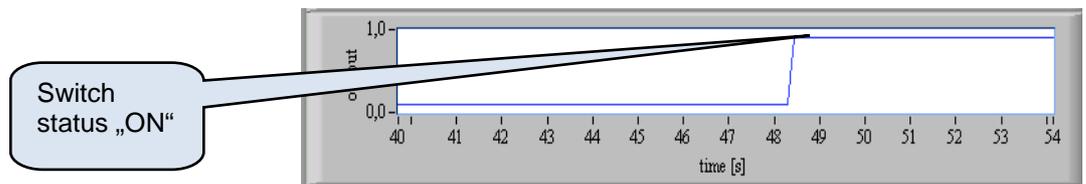
The scale unit of the modulation measurement is specified in Hertz (Hz). The scaling is preset to 120 Hz. You can change this scaling by a double click e.g. on the upper value (here 120 Hz). A input windows appears and you can change the value now. In the same way you can modify the lower value. Even the time line could be changed in the same way.

With the switch button "ON/OFF" you can stop the measurement and take a look at the history of the actual series of measurements by changing the value of the x-axis. After you pressed the "Reset"-button all the data will be erased and set to zero. The program only samples data if the switch button is "ON".

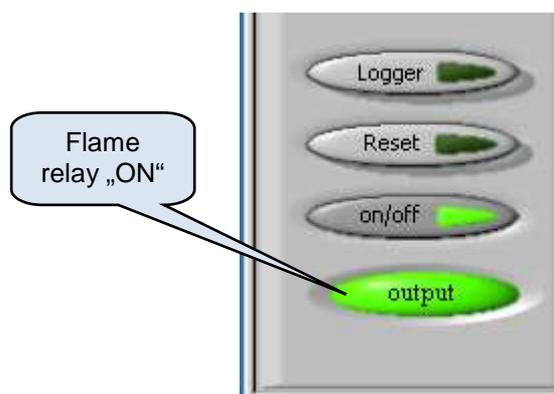
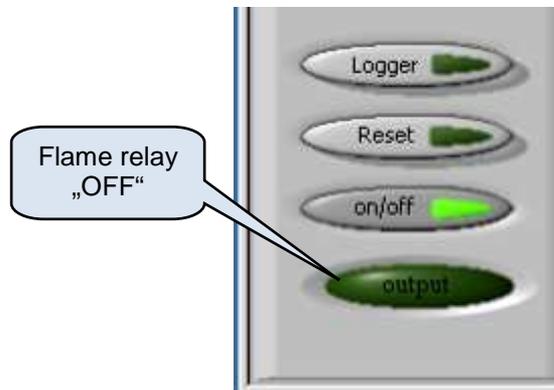
6.6 Graphical display of the switching output

The switching output is displayed by two pictures on the screen. The centre event window shows the chronological sequence of the output timed to the flame frequency of the upper event window.

Changes in scaling can be made in the same way as described in the previous section.

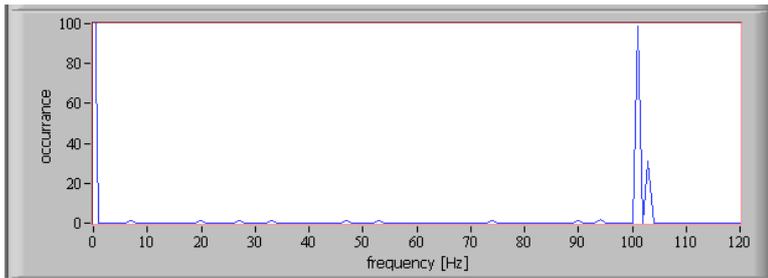


In the left lower area of the program window the status of the flame relay is shown as an indicator field.



6.7 Histogram

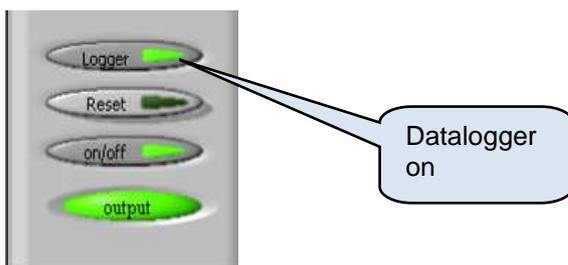
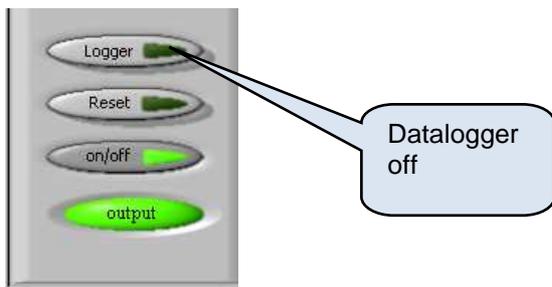
The lower event window shows the percentage progress of the detected flame frequencies in a defined period of time.



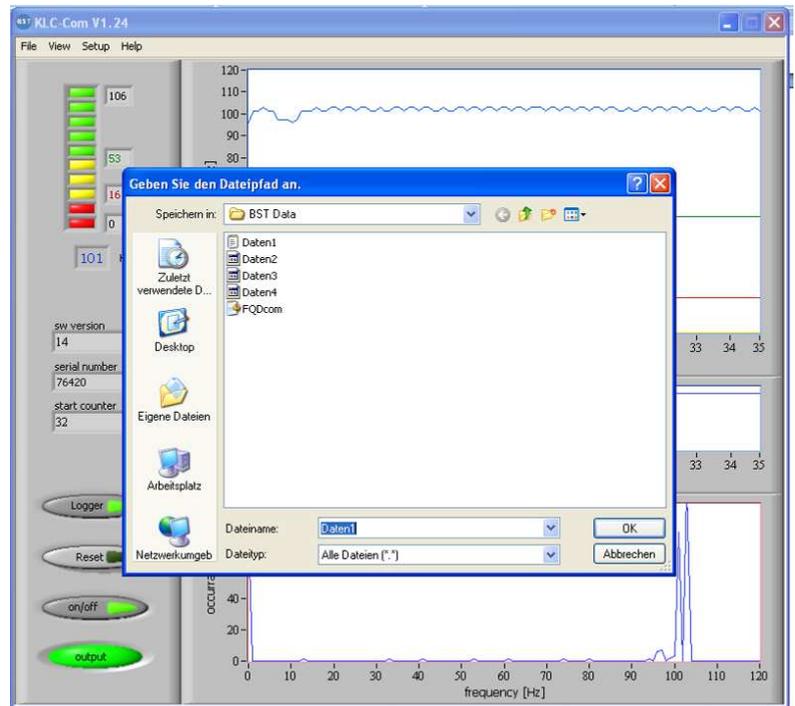
The scaling can be changed in the almost discribed way of chapter 6.4.

6.8 Datalogger

The software KLC-Com provides with the datalogger-function an opportunity to sample and store the series of measurements on your computer. For activation of this function press the button “Logger” on the dark green side. After the activation the colour turns from dark to light green.



After the datalogger is activated a standard selection window appears where you can define name and destination of your sampled data. With pressing the OK-button the storage of the measured data begins.



If the bitstream will be interrupted by any reason like power off of the flame detector or removing the optical adapter, the data recording stops until the connectivity is back.

To stop the datalogger-function you only have to press the “Logger”-button once again. The file will be closed and the green light of the button goes out.

6.9 Processing stored data

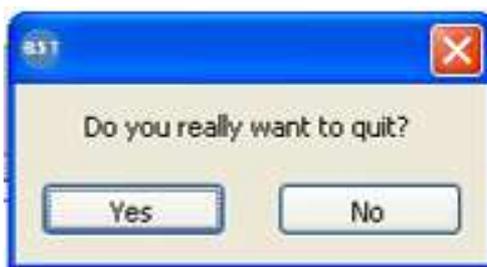
To process the stored data file you can use programs like MS-Excel or other calculation programmes. With those programmes you can analyse and handle the data the way you want, e.g. to compile a table or a graphic.

6.10 Closing this programme

To close the programme KLC-Com just open the menu and choose the in menu item “File” the “Exit” item.



After you have clicked “Exit”, you will be asked to confirm the end of the programme. Choose “Yes” to end the programme.



7 Troubleshooting

Failure	Reason	Rectification
After start of KLC-Com the mouse controller doesn't work proper	The „plug&play“option is not disabled for the used interface	Disable in the advanced adjustments the option for „plug&play“ (see chapter 5.1.6)
Incomming Data are displayed hesitant	Problem with the data transfer	Reduce USB-Package size for send and receive and BM-Adjustments (see chapter 5.1.6)
Data transfer sudden stopps	Opto adapter from KLC loosend Cable break at opto adapter	Plug opto adapter once again Change the complete device

8 Order data

The diagnostic tool KLC-Com is available from BST Solutions GmbH under the following order data:

Part	Version	Part number
Diagnostic tool KLC-Com	Optical adapter, USB - Interface and software	731000080980

Accessories

Artikel	Ausführung	Artikelnummer
USB-Interface with optical adapter (without software)	Optical Adapter, USB-Interface	731000080981

