CS INSTRUMENTS

Translation of the original operating instructions

EN

All-in-one Solution

| COMPRESSED AIR QUALITY |

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Table of contents

1 General information

For the sake of simplicity, this documentation refers to the product "All-in-one Solution" simply as the **product**.

1.1 Documentation

This documentation provides important warnings, safety precautions, and instructions for the safe and proper operation of the product.

▷ Before operating the product, read this documentation carefully and ensure that you fully understand its contents.

▷ Always keep this documentation readily available for reference purposes.

1.2 Symbols and labels used

The following markings and symbols are used in this documentation:

Labeling/symbol	Usage
Text	Important text passages are highlighted
text	Control elements All-in-one Solution
Text	Software user interface
Text > Text > Text	User interface click path
2 Security	Cross-reference to text passage, figure or chapter
•	Enumeration, list element
▷	Call to action as part of an instruction. Can also be numbered.
✓	Final or intermediate result of an action instruction
✗	Final or intermediate result of an instruction that has not been achieved
ⓘ	Note on an intermediate result

Table 1: Symbols and labels used

1.3 Safety instructions and notes

DANGER
Indicates an imminent danger.
Death or very serious injuries may result.

WARNING
Indicates a potentially dangerous situation.
Death or serious injury may result.

CAUTION
Indicates a potentially dangerous situation.
Slight or minor injuries may result.

NOTICE
Indicates a potentially dangerous situation.
Material or environmental damage may result.

NOTE
Indicates important information, application tips, and useful information for proper working.

2 Security

The product has been designed, manufactured, and functionally tested in accordance with applicable safety regulations.

To ensure operational safety, please observe the following:

- Chapter "Intended use"
- Chapter "Organizational measures to be taken by the operator"
- Chapter "Residual hazards"

Regardless of the instructions provided in this manual, all applicable country-specific occupational health and safety regulations must be observed.

2.1 Intended use

The operational safety of the product supplied is only guaranteed if it is used as intended.

The product is a high-precision measuring device for monitoring and documenting the quality of compressed air systems. It supports compliance with the quality classes defined in ISO 8573-1 through continuous, indicative control of the oil vapor content in accordance with the measuring methods in ISO 8573-5.

Intended use exists in particular if

- the product is operated within the specified pressure range,
- the permissible operating temperature is maintained,
- only gaseous, non-corrosive, non-aggressive carrier gases are used,
- contact with liquids or aerosols is avoided - in particular through suitable pre-filtering,
- the installation is carried out in such a way that condensation in the appliance is excluded (e.g. through adapted temperature control) and
- calibration and maintenance are carried out regularly by qualified personnel.

Any use outside these framework conditions, in particular if the pressure or temperature is exceeded or if liquids or hazardous substances are introduced, is considered improper use and can lead to malfunctions or irreversible damage.

Any use beyond or deviating from this is considered improper use. The manufacturer accepts no liability for any resulting damage.

Intended use also includes:

- Adherence to the supplied documentation
- Compliance with all inspection and maintenance requirements specified by the manufacturer

Reasonably foreseeable misuse or improper handling are:

- Contact with liquids
- Contact with steam, aggressive gases or hazardous substances
- Use as a climbing aid
- Operation outside the technical specifications
- Tampering with the product in any way that does not comply with the intended and described procedures
- Continuous outdoor operation in wet conditions or direct exposure to the weather
- Use in potentially explosive atmospheres

2.2 Organizational measures of the operator

The product may only be used if it is in perfect technical condition. It may no longer be used if it has been technically modified or damaged.

Instructions

The information on commissioning, operation, and maintenance provided in these instructions must be followed. These instructions should always be kept accessible with the product.

Personnel

People working on the product must read these instructions, particularly the chapter entitled "2 Security", before starting work. This also applies to people who only work occasionally.

2.3 Residual risks

DANGER

Risk of injury due to insufficiently qualified personnel

Improper handling of the product can lead to serious personal injury and damage to property. All work described in these instructions may only be carried out by qualified specialists.

Qualified personnel are persons with appropriate training and in-depth knowledge of measurement, control, regulation and compressed air technology. They must also be familiar with the applicable national regulations, standards and directives and be able to assess risks independently.

DANGER

Injury or death from touching live parts

When carrying out installation and maintenance work, you may encounter parts that carry dangerous voltages during operation. Touching live parts can lead to death.

- ▷ Work on electrical systems or equipment may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with electrotechnical regulations.

DANGER

Danger from escaping compressed gas

Contact with escaping pressurized gas or unsecured system parts can lead to serious injury or death.

- ▷ Only carry out installation and maintenance work when the system is depressurized.
- ▷ Only use pressure-resistant installation material and suitable tools that are in perfect working order.
- ▷ Before pressurizing, check all system parts and tighten all screw connections.
- ▷ Always open valves slowly to avoid pressure surges.
- ▷ Install compressed air lines tightly.
- ▷ Ensure that people and objects cannot come into contact with escaping compressed gas.
- ▷ Avoid transmitting vibrations, oscillations and shocks to the product.
- ▷ Carry out a leak test of the system before commissioning.

WARNING

Danger due to improper power supply or modifications

The product is designed for a safe low voltage of +24 V DC (Extra Low Voltage). The touch voltage is well below life-threatening limits for adults and normal applications.

- ▷ Always ensure that the power supply unit complies with the specifications. Proper functioning and the integrity of the power supply unit must be ensured. In the event of unusual heating, the power supply unit must be checked, repaired or replaced immediately by a specialist.
- ▷ Do not use mains voltage or higher voltages. Modifications, installations or attachments with higher voltages - especially mains voltage - are at your own risk. In such cases, the operator bears full responsibility for electrical safety.

WARNING

Danger during operation outside the specified limit values

Exceeding or falling below the permissible operating, storage or transportation limits can endanger people and property. There is a risk of malfunctions and operating faults as well as falsified measurement results.

- ▷ Only operate the product within the limit values specified on the rating plate and in the technical data.
- ▷ Observe the permissible storage and transportation conditions.

WARNING

Danger due to exceeding pressure or temperature limits or fire

Exceeding the permissible operating pressures or operating temperatures can lead to serious damage to the appliance or danger to persons. The operator is responsible for protecting the system against excess pressure and temperature - especially in the event of possible sources of fire at the installation site.

Safety devices to protect against excess pressure due to fire are not included in the scope of delivery.

- ▷ Ensure that the permissible operating limits are not exceeded under any circumstances.
- ▷ Take suitable measures to ensure that the ambient conditions at the installation site remain within the permissible operating temperatures.
- ▷ Check whether there are potential sources of fire at the installation site and, if necessary, take additional protective measures to prevent excess pressure due to fire.

CAUTION

Danger due to malfunction of the product

Incorrect installation or inadequate maintenance can lead to malfunctions that impair the function of the product and can lead to dangerous misinterpretations.

- ▷ Observe all applicable national regulations and safety regulations during installation and operation.

WARNING

Risk of injury due to unauthorized modifications

Unauthorized device modifications can cause injuries and lead to the loss of the operating permit. Operation is only permitted with original components.

- ▷ Unauthorized modifications are not permitted and lead to the exclusion of any warranty and liability by the manufacturer (CS INSTRUMENTS).

3 All-in-one Solution

3.1 Product overview

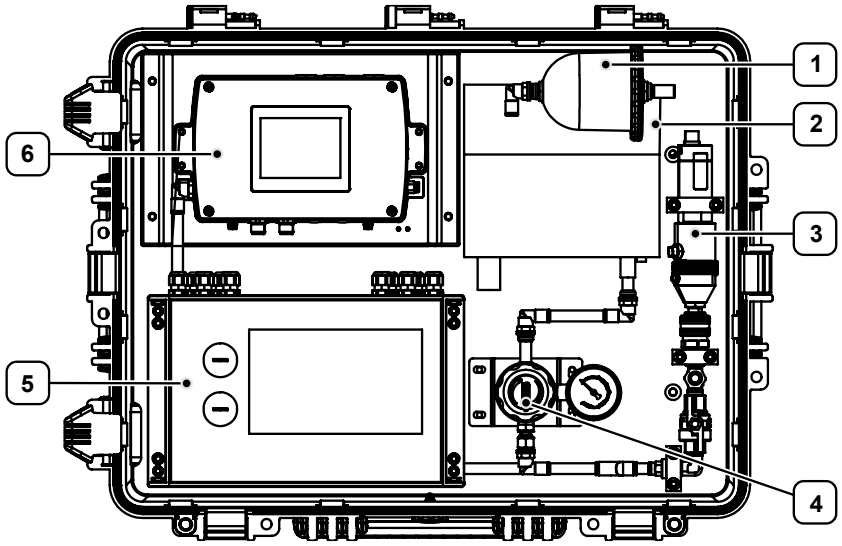

Figure 1: All-in-one Solution (example)

1 Zero filter (for particle counter)

2 Particle counter (PC 400)

3 Dew point sensor (FA 510)

4 Pressure reducer with pressure gauge

5 Chart recorder (DS 500)

6 Residual oil measuring device (OIL CHECK 500)

3.2 Product description

The product is a highly sensitive measuring system for the early detection of potential contamination in compressed air systems.

Precise monitoring of critical parameters such as pressure dew point and, in particular, residual oil content is essential to ensure consistently high compressed air quality. The system continuously takes a sample directly from the compressed gas flow - without additional fittings - and analyzes it in real time for traces of organic compounds.

The intended application includes in particular

- mobile use on compressed air supply systems, pipelines or compressors for testing and documenting compressed air quality,
- monitoring systems for compliance with quality classes in accordance with ISO 8573 (e.g. class 1 for residual oil and particles) and
- the early detection of failures or drops in performance, e.g. in compressed air dryers, filters and treatment components.

The measuring system comprises the following components:

Product	Measuring function	Product Description
FA 510	Residual moisture measurement	Determination of the water content or pressure dew point in the compressed air
PC 400	Particle measurement	Detection and classification of particles in compressed air in accordance with ISO 8573-4
OIL CHECK 500	Residual oil measurement	Determination of the residual oil content in the compressed air in accordance with ISO 8573-5
DS 500	Measured value acquisition	Acquisition and storage of analog and digital input signals for central evaluation

Table 2: Components included

3.3 Scope of delivery

The scope of delivery includes the following components:

- All-in-one Solution
- Plug-in power supply unit (24 V DC)
- Connection hose (2 m PTFE hose with quick coupling)
- Zero filter (for particle counter)
- Calibration certificate
- USB storage medium
- Translation of the original operating instructions

3.4 Applicable documents

This Translation of the original operating instructions contains information on the operation of the product "**All-in-one Solution**". This essentially includes information such as

- Installation and commissioning
- Maintenance and servicing

NOTE

Particle measurement is not part of this document.

Further information on this can be found in the "Operating instructions - PC 400".

NOTE

The residual oil measurement is not part of this document.

Further information on this can be found in the "Operating instructions - OIL CHECK 500".

NOTE

Measured value recording is not part of this document.

Further information on this can be found in the "Operating instructions - DS 500".

4 Transportation and storage

NOTE

Improper transportation, storage and commissioning are accident-prone and can cause damage or malfunctions to the delivered product, for which the manufacturer (CS INSTRUMENTS) does not grant any liability or warranty.

4.1 Delivery

Transport damage

▷ Check the delivered components for any visible transportation damage.

▷ Report any transportation damage to the following parties immediately:

- the carrier
- the manufacturer's customer service (CS INSTRUMENTS)

▷ Ensure that the product is handled properly during transportation.

Packaging

▷ Keep the original packaging for any future transportation or storage.

4.2 Storage

To avoid damage due to environmental influences, the product must be stored properly when not in use.

▷ If possible, store the product in its original packaging.

▷ Store the product in dry, dust-free rooms.

▷ Keep the product away from direct sunlight, heat sources, and corrosive or aggressive chemicals.

5 Installation and commissioning

CAUTION

Danger from commissioning a damaged product

If a damaged product is installed or put into operation, it may result in functional failures, electrical hazards, or mechanical risks.

- ▷ Before each start-up, inspect the product, accessories, and all supply lines for visible damage, loose parts, or missing components.
- ▷ Immediately take any defective product out of operation immediately.

5.1 Connect product

DANGER

Danger to life due to electrical voltage

During installation, maintenance or in the event of a fault, touchable conductive parts can carry dangerous voltages. Contact with uninsulated parts or mains voltage can lead to serious injury or death.

- ▷ Do not operate the product if power supply cables are damaged or housing parts are defective or removed.
- ▷ Strictly observe all locally applicable regulations and safety regulations.
- ▷ Only carry out work on electrical connections when the power supply is switched off. Secure the product against unintentional restarting.
- ▷ Check all electrical connections before commissioning and regularly during operation.

WARNING

Damage to the product

If the media purity is unclear, a bypass system with a suitable filter must be installed to protect the measuring system from contamination and to enable safe sampling.

- ▷ Further information can be found in chapter "5.4 Dealing with unclear media purity".

Connect product pneumatically

CAUTION

Representative sampling for oil content measurement

Representative sampling is essential for accurate oil content measurement. The sampling point must be selected in such a way that a usable mixture of all compressed air components is recorded.

In the case of gaseous and vaporous organic compounds, a homogeneous distribution in the measurement cross-section can generally be assumed. In such cases, sampling at a fixed point, ideally centrally in the measuring cross-section, is recommended.

The components of the measuring system are permanently integrated in the transport case and only require the system connection at the place of use. The connection to the compressed air system is made via a quick-release coupling.

Prerequisite

- The system is depressurized.
- The installation surface is flat and stable.

Materials

- Supplied connection line with quick coupling
- Coupling socket (nominal diameter 7.2)
- Bypass system with suitable filter for unclear media purity (optional)

▷ Ensure that the product is standing on a level and stable surface.

▷ Check whether the nominal pressure and media purity correspond to the product specifications.

▷ If the media purity is unclear: Install a bypass system with a suitable filter to avoid measurement deviations and sensor contamination.

ⓘ Further information can be found in chapter "5.4 Dealing with unclear media purity".

▷ Remove the dummy plug from the air outlet of the particle counter.

▷ Remove the dummy plug at the inlet of the measuring section.

ⓘ Keep removed blanking plugs clean and dry so that they can be reinserted when not in use.

▷ Connect the connecting cable to the input of the measuring section.

▷ Connect the connection hose to the compressed air system.

ⓘ Nominal width of coupling socket: 7.2 mm

ⓘ Ensure that the connection components are free of oil and grease.

▷ Lay the connection hose with a large bending radius to avoid flow turbulence.

✓ The measuring system is securely connected and ready for operation for the compressed air supply.

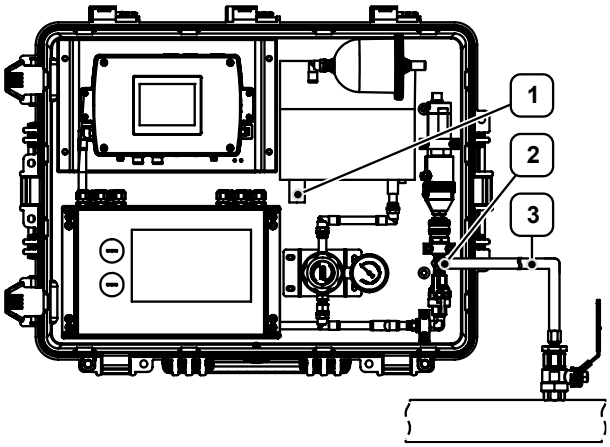

Figure 2: Connecting the product (example)

1	Air outlet particle counter	**3**	Connection line with quick coupling
2	Measuring section inlet		

Connecting the product electrically

The individual components of the measuring system are already connected to each other. Only the power supply unit needs to be connected to the power supply for operation.

Prerequisite

- All pneumatic connections have been made.

Materials

- Power supply unit supplied

▷ Ensure that the components of the measuring system are fully assembled and have no visible damage.

▷ Check whether the mains voltage specified on the power supply unit matches the local mains voltage.

▷ Observe the country-specific regulations on electrical safety.

5.2 Initial commissioning

CAUTION

Temperature equalization before commissioning

Strong temperature fluctuations, e.g. due to transportation or storage, can damage the product or lead to incorrect measured values.

- ▷ Ensure that the device has reached the ambient temperature, especially after storage below 20 °C.
- ▷ Do not put the product into operation until the temperature has completely equalized.

Putting the product into operation

The individual components of the measuring system are preconfigured at the factory and communicate with each other automatically after switching on. Manual adjustment is not necessary.

- ▷ First supply the measuring system with compressed air.
- ▷ To do this, open the ball valve of the measuring system.
- ▷ Slowly open the compressed air supply.
- ▷ Connect the product to the power supply.
  - ✓ Once the power supply has been established, the individual components of the measuring system are switched on automatically.
  - ⓘ An incorrect connection sequence can lead to measurement deviations and incorrect reference values.
- ▷ Open page **2** of channel PC400 on the chart recorder.
- ▷ Then set the outlet pressure on the pressure reducer so that the supply pressure of the particle counter corresponds to the required measuring pressure.
- ▷ To do this, turn the adjustment knob of the pressure reducer clockwise to increase the pressure or counterclockwise to decrease it until the FlowRate reaches **100.00 %**.
  - ⓘ Make sure that the set pressure does not exceed the maximum permissible inlet pressure of the meter.
- ▷ Carry out a leakage test of the entire installation.
- ▷ After switching on, wait until the measured value is stable.
  - ⓘ After connecting, it may take longer for the piping and measuring chamber to be completely flushed.
  - ⓘ Depending on the type of system and storage conditions, this can take up to 24 hours.

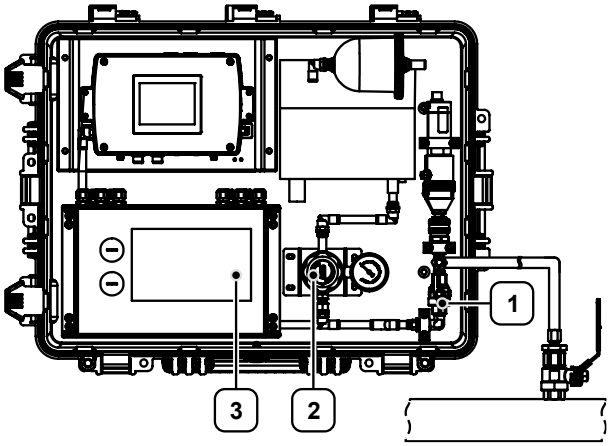

Figure 3: Putting the product into operation (example)

1 Ball valve
2 Pressure reducer with pressure gauge
3 Chart recorder

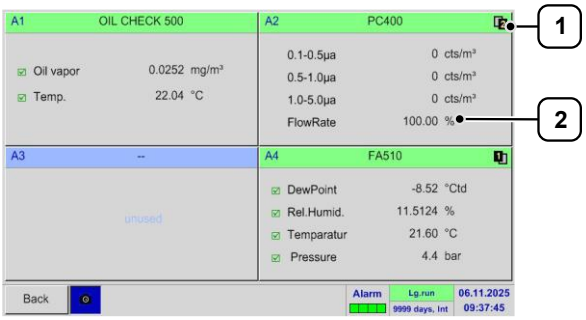

Figure 4: View Channels (example)

1 Page 2 Channel PC400
2 Flow rate

5.3 Switching on and off

Switching on

▷ Connect the product to the power supply.

✓ As soon as measurement results appear, the measuring device is ready for operation.

ⓘ A measured value is usually displayed after a few seconds to minutes.

Switching off

▷ Disconnect the product from the power supply.

✓ The device switches itself off.

5.4 Dealing with unclear media purity

WARNING

Damage to the product

In order to capture oil vapors in accordance with ISO 8573-5, an upstream filter for separating aerosols and liquids is **essential**.

▷ Install a suitable filter upstream of the product to reliably remove aerosols and liquid components from the medium. This is the only way to ensure accurate and long-term trouble-free measurement.

Use a bypass system to check the purity of the media

If the media purity is unclear, a bypass system with a suitable filter must be installed to protect the measuring system from contamination and to enable safe sampling.

Prerequisite

- The system is depressurized.
- Media purity is unclear or endangered by foreign substances.

Materials

- Bypass system with suitable filter (e.g. particle filter or activated carbon filter)

▷ Install a bypass system with a suitable filter between the compressed air system and the measuring system.

ⓘ The selection of filter fineness and material depends on the expected medium and the approved operating conditions.

ⓘ The filter must be replaced in good time in accordance with the manufacturer's instructions or after initial testing and replaced immediately if it is visibly soiled.

▷ Open the bypass valve gradually and observe the measured values on the residual oil meter.

✓ If the measured residual oil content is within the permissible range, the bypass valve can be opened further.

ⓘ If the residual oil content exceeds the permissible limit value, stop the measurement. Continuing may damage the measuring system.

▷ Contact customer service if necessary.

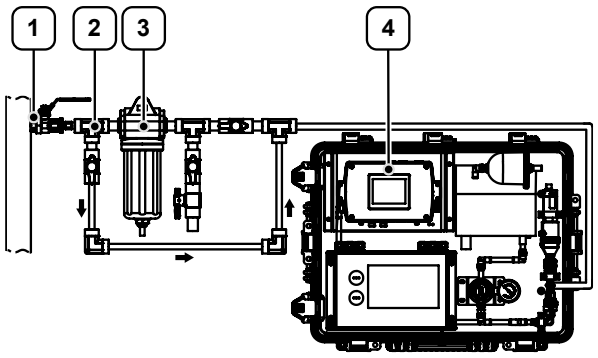

Figure 5: Installing the bypass system (example)

1	Compressed air system	**3**	Filter
2	Bypass	**4**	Residual oil meter

NOTE

Further information on the required media purity can be found in the "Operating instructions - OIL CHECK 500".

Provide particle-free reference air via zero filter

Materials

- Zero filter supplied

If required, a zero filter can be connected upstream of the particle counter to provide particle-free reference air during the zero point check. A particle display despite the use of a zero filter indicates a saturated filter or a fault in the measuring system.

▷ Close the ball valve.

▷ Dismantle the connection line between the particle counter and pressure reducer.

▷ Remove the dummy plug from the zero filter.

ⓘ Keep the removed blind plugs clean and dry so that they can be replaced when not in use.

▷ Fit the zero filter between the particle counter and pressure reducer.

ⓘ Ensure that the installation direction of the zero filter corresponds to the flow direction indicated on the label.

▷ Open the ball valve.

▷ Open side **2** of channel PC400 on the chart recorder.

▷ Then set the outlet pressure on the pressure reducer so that the supply pressure of the particle counter corresponds to the required measuring pressure.

▷ To do this, turn the adjustment knob of the pressure reducer clockwise to increase the pressure or counterclockwise to decrease it until the FlowRate reaches **100.00 %**.

ⓘ Make sure that the set pressure does not exceed the maximum permissible inlet pressure of the meter.

▷ Wait at least 30 minutes before checking the measured values to allow the system to stabilize.

ⓘ If the particle counter still detects particles despite the zero filter, either the zero filter is saturated or defective, or the particle counter is incorrectly calibrated or dirty.

▷ Contact customer service if necessary.

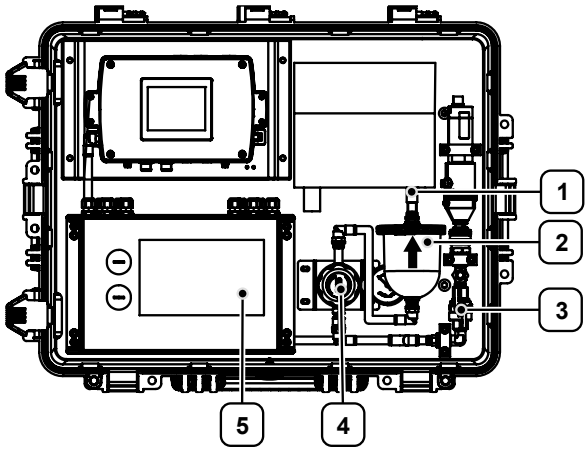

Figure 6: Fitting the zero filter (example)

1 Air connection particle counter

2 Zero filter

3 Ball valve

4 Pressure reducer

5 Chart recorder

6 Configuration

CAUTION

Danger due to incorrect calibration

Improper adjustment of the parameters can lead to considerable deviations in the measured values.

▷ Parameters may only be adjusted by qualified specialists with expert knowledge of the system and the monitored gases.

Configuring basic settings

All components are preset at the factory so that the measuring system is ready for operation immediately after system connection.

▷ Further information on the configuration and operation of the individual components can be found in the respective product manuals.

NOTE

Particle measurement is not part of this document.

Further information on this can be found in the "Operating instructions - PC 400".

NOTE

The residual oil measurement is not part of this document.

Further information on this can be found in the "Operating instructions - OIL CHECK 500".

NOTE

Measured value recording is not part of this document.

Further information on this can be found in the "Operating instructions - DS 500".

7 Compressed air measurement

7.1 Carry out compressed air measurement

NOTE

For a meaningful assessment of the compressed air quality, the measurement should be carried out over a longer period of time.

The minimum measurement duration is 60 minutes; 24 hours is optimal in order to reliably record fluctuations and mean values.

Start the measurement series

The basic steps for starting a measurement series are described below.

Further information on operating the chart recorder can be found in the "Operating instructions - DS 500".

- ▷ Select the Settings > Logger settings command.
- ▷ Select the desired polling interval for data logging.
  - ⓘ Recommendation: 60 seconds
- ▷ Check the Force new record file box to create a new measurement series.
- ▷ Enter the desired name for the measurement series under Comment.
- ▷ Tap the START button.
  - ✓ The recording of the measurement series is started.

Figure 7: Start measurement series (example)

7.2 End compressed air measurement

End compressed air measurement

Prerequisite

- The system is depressurized.

Once the measurement has been completed, the product must be properly decommissioned to prevent damage and malfunctions during the next start-up.

- ▷ Disconnect the power supply.
- ▷ Turn the setting knob of the pressure reducer anticlockwise until the pressure reducer is completely closed.
- ▷ Close the ball valve.
- ▷ Disconnect the connection line between the inlet of the measuring section and the compressed air system.
- ▷ Fit the blanking plug to the air outlet of the particle counter.
- ▷ Fit the dummy plug to the inlet of the measuring section.
- ▷ Close the cover to protect the device from dust and moisture.

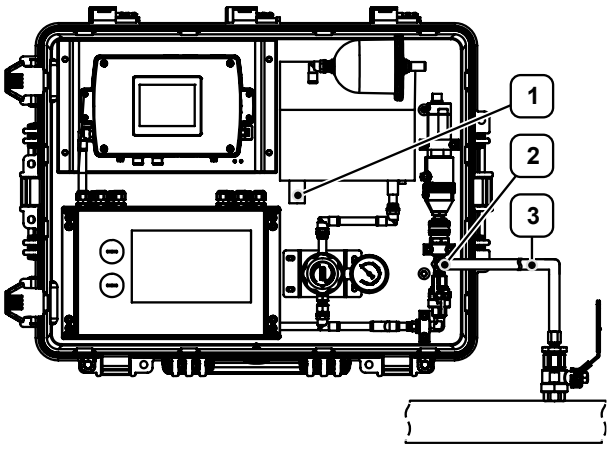

Figure 8: End compressed air measurement (example)

1	Particle counter air outlet	**3**	Connection line with quick coupling
2	Measuring section inlet		

8 Maintenance and servicing

CAUTION

Safety instructions

- ▷ The product may only be serviced by a qualified electrician.
- ▷ Work on the electrical equipment of the product may only be carried out by qualified electricians or by instructed persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.
- ▷ Spare parts must comply with the technical requirements specified by the manufacturer (CS INSTRUMENTS). This is always guaranteed with original spare parts.

NOTE

Unless expressly described otherwise, only begin maintenance and servicing work after

- the product has been disconnected from the power supply,
- the product has been switched off and secured against being switched on again.

8.1 Clean product

Cleaning the housing

If the housing is dirty, clean it with solvent-free cleaning agents.

- ▷ Use a slightly damp, lint-free cloth to clean the housing regularly.
- ▷ Check the product for damage and corrosion.

Cleaning the measuring system

Regular cleaning with clean compressed air reduces measurement errors and ensures a stable and reproducible measurement basis for subsequent tests.

- ▷ Connect a clean, dry compressed air source.
  - ⓘ Only use oil-free and particle-free compressed air.
- ▷ Flush the system with clean compressed air for a few minutes.
  - ✓ This removes residues, moisture and interfering gases from internal hoses, sensors and critical components.
- ▷ Carry out cleaning regularly, especially when the product is not in use - for example overnight or before or after a measurement.
- ▷ Cover the compressed air connection when the product is not in use to prevent the ingress of dust, moisture and contamination.

8.2 Check cables

DANGER

Danger to life due to electrical voltage

During installation, maintenance or in the event of a fault, touchable conductive parts can carry dangerous voltages. Contact with uninsulated parts or mains voltage can lead to serious injury or death.

- ▷ Do not operate the product if power supply cables are damaged or housing parts are defective or removed.
- ▷ Strictly observe all locally applicable regulations and safety regulations.
- ▷ Only carry out work on electrical connections when the power supply is switched off. Secure the product against unintentional restarting.
- ▷ Check all electrical connections before commissioning and regularly during operation.

CAUTION

Danger from commissioning a damaged product

If a damaged product is installed or put into operation, it may result in functional failures, electrical hazards, or mechanical risks.

▷ Before each start-up, inspect the product, accessories, and all supply lines for visible damage, loose parts, or missing components.

▷ Immediately take any defective product out of operation immediately.

Check cables

Prerequisite

- The product is de-energized and freely accessible.

The electrical cables of the product must be checked regularly by a qualified person.

▷ Check the electrical cables for damage.

Check the plug-in power supply unit

Prerequisite

- The product is de-energized and freely accessible.

▷ Check the electrical plug-in power supply unit for visible damage to the housing, plug and cable.

8.3 Check safety functions

Check safety functions

The safety-relevant components must be checked for proper function and integrity.

Prerequisite

- The product is de-energized and freely accessible.

▷ Check existing safety devices (e.g. covers) for function and visible damage in order to minimize the risk of personal injury or damage to property.

▷ Contact customer service if necessary.

8.4 Check mechanical components and connections

Check mechanical components and connections

The mechanical and electrical connections of the system must be checked for tightness, integrity and leak tightness.

The user is always responsible for determining suitable maintenance intervals.

Prerequisite

- The product is de-energized and freely accessible.

▷ Check all pipe connections, hoses and screw connections for tightness and visible leaks.

▷ Carefully tighten any loose connections.

▷ Check for wear, cracks or leaks.

▷ Check the clamping points of the electrical installation for firm contact and freedom from corrosion.

▷ Carry out a leak test of the entire system.

8.5 Perform calibration

Observe calibration intervals

The user is responsible for determining suitable calibration intervals.

NOTICE

Manufacturer's recommendation

To avoid possible errors at an early stage, a calibration should be carried out every 12 months.

▷ Carry out an initial recalibration of the product no later than 12 months after delivery - regardless of the operating conditions.

Increased maintenance is to be expected under the following conditions in particular:

- Extreme temperatures (especially low temperatures)
- Highly increased oil vapor concentrations / humid compressed air
- Falling or overloading of the product
- Interventions for repair purposes

▷ Observe the specifications in the quality management manual (QM system).

ⓘ The calibration interval must be defined dynamically - preferably using a procedure anchored in the QM system. Without corresponding specifications, the determination is risk-based and based on economic considerations.
Frequent recalibration: higher operating costs
Rare recalibration: risk of invalid measurement results

▷ Always have the product calibrated after special operating conditions.

ⓘ For applications with very high accuracy requirements (e.g. ISO air class I, oil vapor content < 0.01 mg/m³):
Recommended start interval: 6 months
With stable measurement recording: Interval extension to 12 months possible

Have factory calibration carried out

▷ Send the product to the manufacturer (CS INSTRUMENTS).

8.6 Customer service

For rapid processing by customer service

Prerequisite

- Material number (product rating plate)
- Serial number (product rating plate)

▷ Describe the problem as precisely as possible.

▷ Make a note of any error messages displayed.

▷ Inform customer service about:

- When does the problem occur?
- How often does it occur?
- What changes were last made to the product, the configuration, or the environment?

9 Decommissioning and disposal

Decommissioning

Decommissioning is defined as an extended period of non-use of the components. The components must then be protected from external influences.

- ▷ If necessary, disconnect the components from the power supply.
- ▷ Properly package the components if they will not be used for an extended period.
- ▷ Store the components in a manner that prevents exposure to significant temperature fluctuations. Resulting condensation can lead to moisture buildup and cause corrosion.

Disposal

Parts and components that have reached the end of their service life, e.g. due to wear, corrosion and mechanical stress, must be properly disposed of after disassembly, in accordance with national regulations.

The product and packaging contain recyclable materials that must not be disposed of with residual waste.

- ▷ Separate the components after recycling.
  - ⓘ Disposal code according to the European Waste Catalog (EWC) 16 02 14, electrical and electronic devices and their components.
- ▷ Dispose of the components in an environmentally responsible manner, in accordance with local regulations or through a certified disposal company.

NOTE

Information on environmentally responsible disposal can be obtained from local authorities, or certified disposal companies.

- ▷ Alternatively, you can return the product to the manufacturer (CS INSTRUMENTS) at the end of its service life.

10 Appendix

10.1 Technical data

Parameters	Specification	Unit
weight	~ 30,0	kg
Power supply	24	V DC
Power consumption	max. 90	W
Area of application	Indoor use	
Degree of soiling	2	
Operating temperature	+5...+50 (recommendation: +20...+45)	°C
Storage temperature	-10... 60	°C
Air humidity	max. 80% relative humidity, non-condensing	
Altitude clearance	up to 4000 m above sea level (Use above 2000 m only with appropriately approved power supply unit)	
Protection class	IP54	

NOTE

Further information on the technical data of the individual components can be found in the respective product manuals.

10.2 Dimensions

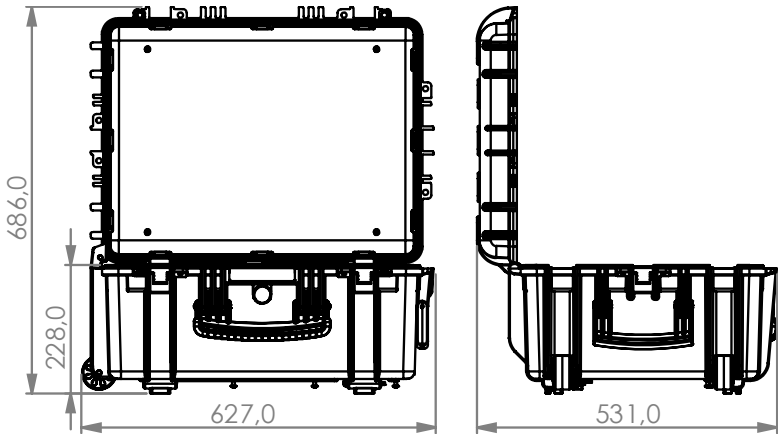

Figure 9: Dimensions All-in-one Solution

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