# STORAGE AND HANDLING INSTRUCTIONS

**Continuous Gas Analysis System** 



#### **Described product**

Continuous Gas Analysis System

#### **Document ID**

8019831\_1BMW

### Manufacturer

SICK AG Erwin-Sick-Straße 1 · 79183 Waldkirch · Deutschland Telefon: +49 7641 469-0 www.sick.com

### **Production location**

SICK AG Gisela-Sick-Straße 1 · 79276 Reute · Deutschland

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#### **Original document**

This document is a translation of the original document of SICK AG.

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# **1** About this Document

#### Note

This document:

- Contains information required during the life cycle of the Continuous Gas Analysis System.
- Is available to all those people who work with the Continuous Gas Analysis System.

Please read this document carefully and make sure that you understand the content fully before working with the Continuous Gas Analysis System

# 1.1 Limitation of Liability

#### Note

Applicable standards and regulations, the latest state of technological development and many years of knowledge and experience have all been taken into account, when assembling the data and information contained in this document.

The manufacturer accepts no liability for damage caused by:

- Failing to observe this document.
- Non-compliance of notices and regulations.
- Unauthorized installation and mounting of the Continuous Gas Analysis System.
- Arbitrary modifications.
- Use of unauthorized spare parts, consumables and accessories.

With special variants, where optional extras have been ordered, or owing to the latest technical changes, the actual scope of delivery may vary from the features and illustrations shown here.

# 1.2 Purpose of this Document

This document provides important information concerning:

- Storage
- Handling

of the Continuous Gas Analysis System.

# Note

Follow up activities and procedures not covered by this instruction are not allowed to practice without detail documentation and / or advises by adequate trained professionals (e. g. mechanical and electrical installation).

# 1.3 Target Group

This document is intended for qualified personnel which are authorized to carry out safety storage and handling of the Continuous Gas Analysis System.

# **1.4** Further Information

#### **Special local conditions**

Follow all local laws, technical rules, and company-internal operating directives applicable at the respective installation site of the Continuous Gas Analysis System.

#### Preserving the documents

This document and the additional technical documentation and information must be:

- Available for reference
- Passed on to new owners

# 1.5 Additional Technical Documentation/Information

- Operating instructions of the system components.
- System-Documentation contains Technical Data for e.g.:
  - Center of gravity indications
  - Dimensions
  - Lifting points

# 1.6 Document Conventions

Instructions



Refer to another document

All units of measurement in this document are originally metric units.

Storage and Handling is subject to change. Images might differ from actual design.

# 2 Important Safety Instructions

#### Note

Read and obey all safety instructions in this document.

# 2.1 Supplemental Directives

- Before working on the Continuous Gas Analysis System, read this document carefully and follow all safety instructions and information.
- Only qualified persons from the respective areas are permitted to work on the Continuous Gas Analysis System.
- Follow operating procedures.
- ► Follow local regulations.
- Observe local regulations for working with gas and electrical components.
- Access to the Continuous Gas Analysis System is restricted to authorized personnel only.

### System damages in transit

Damage to any system components or parts can lead to malfunction of the entire system.

- Do not ignore damaged parts by transport.
- Contact SICK service team.

# 2.2 Requirements for the Qualification of Personnel

Only qualified personnel from the respective field are permitted to work on the system.

- Qualified personnel have the specialist training, skills, and experience, as well as knowledge of the relevant regulations and standards, to be able to perform tasks delegated to them and to detect and to avoid any potential dangers independently.
- Electricians have the specialist training, skills, and experience, as well as knowledge of the relevant standards and provisions to be able to carry out work on electrical systems and to detect and avoid any potential dangers independently.

# 2.3 Potential Hazards

#### Suspended loads

Suspended loads can lead to injuries if the following is not observed:.

- Never step under suspended loads.
- Pay close attention when lifting loads.
- Observe the lifting instructions to avoid injuries and accidents.
- Use suitable undamaged lifting equipment.
- ► Wear personal protective equipment (safety helmet, safety shoes).

# 2.4 System Warranty

Any warranty claim expires if:

- Safety instructions and measures in this document are not observed.
- Parts or components of the Continuous Emission Monitoring System are installed, assembled or modified without authorization.
- The Continuous Emission Monitoring System is changed or modified.
- Software is changed, adapted and/or manipulated without authorization.

# 2.5 RoHS-Directive

This product is designed for applications in large industrial plants according to Article 2 (4) e, RoHS 2011/65/EU and can therefore only be used in such systems.

The product is neither suitable nor approved for use outside of these systems. SICK cannot assume any kind of warranty or liability for use outside of these systems..

# 2.6 Safety Conventions

The warnings used in this manual have the following meanings:

#### DANGER

Indicates a hazardous situation with a high risk level, which if not avoided, will result in death or serious injury.



Indicates a hazardous situation with a middle risk level, which if not avoided, could result in death or serious injury.

#### 

indicates a potentially dangerous situation with a low risk level, which if not avoided may lead to minor or moderates injuries.

# NOTICE

Indicates a situation which, if not avoided, may result in property damage to the system or products in its vicinity.

#### Note

Indicates important information and useful hints..

# 2.7 Warning Signs

Do not remove or cover warning stickers. Damaged or missing stickers must be replaced.

Sign	Significance
	Warning of a danger point
	Warning of suspended loads
$\diamond$	Gas bottle

# 2.8 Mandatory Signs

Signs	Significance
	Use safety gloves
	Use protective head wear (hard hat)
	Use protective footwear

# 2.9 Symbols on the Packaging

Symbol	Meaning	
	<ul><li>Fragile</li><li>Handle with care</li><li>Do not drop</li><li>Do not string</li></ul>	
<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	<ul> <li>This side up</li> <li>Always during transport, storage and handling</li> <li>Do not roll, fold or tilt</li> </ul>	
Ť	<ul> <li>Keep away from water, rain and high humidity</li> <li>Store in a closed warehouse</li> <li>Cover large packages carefully with rain cover</li> </ul>	
<b>6</b>	<ul> <li>Sling here</li> <li>Attachment point</li> <li>Notice center of gravity Cut or extend slings accordingly</li> </ul>	
<del>.</del>	<ul><li>Center of gravity</li><li>Position of the center of gravity</li></ul>	
X	<ul> <li>Do not use fork lift</li> <li>Do not lift up the product with a fork lift</li> </ul>	
× Z	<ul><li>Do not stack</li><li>Do not stack the packages</li></ul>	
- Alton	<ul> <li>Store in a closed warehouse</li> <li>Protect packing against: <ul> <li>Direct sunlight</li> <li>Groundwater</li> <li>Sandstorm</li> <li>Heat</li> </ul> </li> </ul>	

# 3 Storage Guidance - Non-Seaworthy Packing

# Note

Do not open the non-seaworthy packing.

# 3.1 Storage Requirements

### 3.1.1 Locations

Location	Requirements
Open warehouse with roof	Sun and rain protection
	Flat and stable ground free from obstacles
	Ground water protection
	Rain and flood protection
Closed warehouse	Ground water protection
	Sandstorm protection
	Rain and flood protection
	Sufficiently ventilated
	If necessary, heated and air conditioned
	<ul> <li>Insects and animal protection</li> </ul>

### 3.1.2 Short Period - max. 1 month

• Open warehouse with roof

Storage conditions		
Ambient temperature	-20°C to +60°C / -4°F to +140°F	
Relative humidity	max. 65% non-condensing	

### 3.1.3 Intermediate Period - max. 2 months

#### • Closed warehouse

Storage conditions		
Ambient temperature	0°C to +40°C / +32°F to +104°F	
Relative humidity	max. 65% non-condensing	

# 3.1.4 Long Period - more than 3 months

Closed warehouse

Storage conditions		
Ambient temperature	+5°C to +35°C / +41°F to +95°F	
Relative humidity	max. 65% non-condensing	

### 3.1.5 Computer Material

• Closed warehouse

Storage conditions		
Ambient temperature	+10°C to +35°C / +50°F to +95°F	
Relative humidity	max. 65% non-condensing	

# 4 Storage Guidance - Seaworthy Packing

### Note

Do not open the seaworthy packing.

If the seaworthy packing must be open, the packing needs to be treated as a non-seaworthy packing.

Or the seaworthy packing is restored professionally.

# 4.1 Storage Requirements

# 4.1.1 Locations

Location	Requirements
Open warehouse with roof	<ul> <li>Sun and rain protection</li> </ul>
	Flat and stable ground free from obstacles
	Ground water protection
	Rain and flood protection
Closed warehouse	Ground water protection
	Sandstorm protection
	Rain and flood protection
	Sufficiently ventilated
	If necessary, heated and air conditioned
	<ul> <li>Insects and animal protection</li> </ul>

### 4.1.2 Short Period - max. 1 month

• Open warehouse with roof

Storage conditions		
Ambient temperature	-10°C to +60°C / -14°F to +140°F	
Relative humidity	max. 80% non-condensing	

# 4.1.3 Intermediate Period - max. 3 months

Closed warehouse

Storage conditions	
Ambient temperature	0°C to +40°C / +32°F to +104°F
Relative humidity	max. 80% non-condensing

# 4.1.4 Long Period - more than 3 months

Closed warehouse

Storage conditions	
Ambient temperature	+5°C to +35°C / +41°F to +95°F
Relative humidity	max. 80% non-condensing

#### Note

For storage periods longer than 12 to 24 months replace the desiccant every 6 months and close the foil again professionally.

# 4.1.5 Computer Material

• Closed warehouse

Storage conditions	
Ambient temperature	+10°C to +35°C / +50°F to +95°F
Relative humidity	max. 80% non-condensing

# 5 Handling Instructions

### Note

Only qualified personnel are authorized to carry out safety handling of the Continuous Gas Analysis System.

#### Note

The mentioned devices are examples. The choice of the correspondent device depends on the relevant system shelter.

# DANGER

Risk of injury due to suspended or tilting loads.

- Never stand under suspended loads.
- Pay close attention when lifting loads.
- Observe the lifting instructions to avoid injuries and accidents.
- Use suitable lifting equipment.
- Wear personal protective equipment (hard hat, safety shoes).

# 5.1 Steel-Shelter



Dimensions and weights in this example may vary. For detailed information on dimensions and weights, see the corresponding technical system documentation (Technical Data).

#### 5.1.1 Dimensions



Fig. 1: Shelter top view example

Legend	
Width	2435 mm
Length	8000 mm without air condition
Weight	6500 kg



Fig. 2: Shelter front view, example

Legend	
Height air condition	1000 mm
Height	3000 mm without base plate



Fig. 3: Shelter side view, example

Legende	
Höhe	3100 mm (inkl. Bodenplatten)
Analysenraum Breite	2435 mm

### 5.1.2 Handling Devices

# NOTICE

Note the centre of gravity on the analysis chamber (shelter) before lifting.

- Select appropriate devices:
  - Crane
  - Slings, ropes, chains, and hooks
  - Forklift

### 5.1.3 Crane Handling



Fig. 4: Shelter lifting example with crane, slings, ropes and forklift points



Fig. 5: Shelter lifting example, connecting plate detailed view

Optionally, an additional lifting lug can be mounted on the connecting plate.



Fig. 6: Additional lifting lug

# 5.1.4 Forklift Handling

Use an appropriate forklift



Fig. 7: Forklift specifications, example

Adjust the forks to the width of the analysis chamber. To protect the underside of the analysis chamber, place the forks on suitable wooden battens/boards or rubber mats.



Fig. 8: Forklift forks distance

### Note

Unloading and transporting with a forklift truck is only recommended up to a maximum length of 7m and a total weight of 5000kg.

Analysis rooms with higher dimensions and weights must be unloaded and transported with a suitable crane.

#### 

Tilting the analysis room.

- Center the forks under the analyzer compartment floor. Equal distances to the left and right of the edge of the analyzer chamber to the fork edges.
- ► Fork tips must protrude over the edge of the analyzer chamber.



Fig. 9: Fork tips protrude over the edge

### 5.1.5 Abload and Transport 8m Analysis Room

#### Note

Suitable devices (crane, chains, and heavy-duty rollers) must be used for transport and lifting.



Fig. 10: Transport ring with chain and hook



• Engage suitable chain with hooks at the four lifting points.

Fig. 11: Heavy duty crane

- ► Lift container with heavy-duty crane.
- Truck can drive away.



Fig. 12: Heavy-duty rollers

Place heavy-duty rollers under the floating container.



Place the heavy-duty roller with drawbar on the opposite side under the floating container.

Fig. 13: Heavy-duty roller with drawbar

- Lower the container onto heavy-duty rollers.
- Use an appropriate vehicle to transport the container to the installation site.

#### 5.1.6 Installation Site

- Ensure the load capacity of the ground.
- Ensure level and obstacle free installation surface.

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# 5.2 GFK-Shelter

# 5.2.1 Dimensions





### **GFK-Shelter dimensions legend (example)**

а	Height	2140 mm / 84.2 in
b	Length incl. air condition	1420 mm / 55.9 in
С	Height lifting point	80 mm / 3.1 in
d	Width	700 mm / 27.5 in
	Weight	300 kg / 661.4 lbs

### 5.2.2 Crane Transportation

- ► A spreader beam (4) is required for crane transport.
- All transport straps (1) must be carried by the ropes or straps.
- Ropes and straps must be evenly tensioned.



Fig. 15: Crane transport (example)

# Legend

- 1 Transport flaps load capacity per flap: 600 kg (1322,77 lbs)
- 2 Ropes and straps
- 3 Rope tensioner
- 4 Spreader beam hook distance: shelter width + 200 mm
- 5 Strip foundation or base plate
- 6 Centre beam for strip foundation from cabinet width 2.50 m

### 5.2.3 Forklift Transportation

### Note

#### Use appropriate forklift

- Do not loosen the connecting screws to the pallet until the GRP analysis chamber is at its installation location.
- Always screw the GRP analysis chamber to the pallet for transport purposes.
- Insulating layer (PU foam) on the bottom of the cabinet must not be damaged during unloading and transport.

Fork length must be at least equal to the cabinet depth.

# 5.3 Cabinet

# 5.3.1 Dimensions



Fig. 16: Cabinet dimensions (example)

Legend		
а	Height with eye bolt	2150 mm (84.6 in)
b	Height without eye bolt	2100 mm ( 82.6 in)
с	Width without base	600 mm (23.6 in)
d	Length	800 mm (31.4 in)
е	Base width	550 mm (21.6 in)
	Weight	250 kg (551.15 lbs)

### 5.3.2 Crane Transportation

- Single cabinet or bayed combinations are suitable for crane transport.
- Transport lugs and combination angles for crane transport are included in the scope of delivery.



Fig. 17: Transport lug - combination angle

Crane transport examples



Fig. 18: Single and double cabinet crane transport (example)



#### 5.3.3 Forklift Transportation

#### Note

# Use appropriate forklift.

- Do not loosen the connecting screws to the pallet until the switch cabinet system is at its installation site.
- For transport purposes with pallet, always screw the control cabinet system to the pallet.
- When transporting single and bayed cabinets, ensure that the plinth panels are fitted and that the load is only applied in the area of the plinth feet.
- For cabinets arranged in a row, a plinth panel should be folded down and mounted in such a way that a stable baying connection is created in the plinth area.





Before lifting with a crane: Loosen screw connection to the pallet.

# 5.3.4 Forklift Transportation Examples



Fig. 21: Forklift transportation (examples)



Fig. 22: Forklift transportation bayed cabinet (example)

# 5.4 Sea Container

# 5.4.1 Dimensions



Fig. 23: Sea container top view (example)



Fig. 24: Sea container side view (example)





Fig. 25: Sea container front view (example)

### **Technical Data**

Dimensions	
Туре	10ft sea container
Height x Length x Width	2591 x 2991 x 2438 mm (102 x 117 x 96 in)
Weight	approx. 3500 kg (7716 lbs)

Dimensions	
Туре	20ft sea container
Height x Length x Width	2591 x 6058 x 2438 mm (102 x 238 x 96 in)
Weight	approx. 5000 kg (11023 lbs)

### 5.4.2 Unloading and Transport

#### Note

Suitable equipment (crane, chains, forklift trucks and heavy duty rollers) must be used for transport and lifting.

▶ When using a forklift truck, use pockets on the sea container.



Fig. 26: Sea container with forklift pockets (1)



Fig. 27: Sea container unloading

#### 5.4.3 Location Site

- Ensure the bearing capacity of the floor.
- Ensure level and obstacle-free installation surface.

# 5.5 Gas Cylinder Cabinet



Fig. 28: Gas cylinder cabinet (example)

### 5.5.1 Transport

The individual cabinet units are secured on transport skids to protect the cabinet during transport. Furthermore, the cabinets can be driven under with an industrial truck, e.g. a lift truck. The adjustable feet (short version for installation without base, long version for installation with base) are included with the cabinet.

#### Assembly of the adjustable feet:

- Remove packaging.
- Remove the leveling feet.
- Remove the cabinet from the transport skid and place it on a pallet truck.
- Screw the leveling feet into the cabinet from below and tighten.
- Transport the cabinet to the installation site.

#### 5.5.2 Safety Measures

The unloaded safety cabinets can be completely driven under, picked up and transported with both transport forks of the industrial truck from the door side to the rear side when the plinth panel is removed. It is imperative to avoid touching the adjustable feet.

Size XXL cabinets must be picked up from the side for transport. It must be ensured that the transport forks of the industrial truck reach right under the middle of the opposite cabinet module. Lifting from the door side is only permitted for positioning the cabinet at the installation site.



Only qualified persons from the relevant specialist areas may carry out work on the gas cylinder cabinet.

There is an increased risk of tipping over if not handled professionally.

#### 5.5.3 Installation

#### Requirements for the place of installation/location

The surface must be level and be able to support the weight of the safety cabinet when fully loaded.

Furthermore, the installation site must ensure that the gas cylinder cabinet:

- cannot be damaged by vehicles.
- ▶ is not exposed to any direct or indirect heat source.
- ▶ is protected from moisture.
- is not exposed to an operating temperature below 5 °C (23 °F) or above + 45 °C (113 °F).

#### 5.5.4 Alignment

The cabinet units must be installed horizontally. Only by aligning them is it ensured that they cannot fall over and likewise only under this condition is the proper functioning of the self-closing mechanism guaranteed.

#### Alignment with plinth and plinth mounting

The safety cabinets with base, are delivered with longer feet. It is absolutely necessary to completely assemble the base and align the safety cabinets.

The following procedure must be observed:

- The rear part of the 4-part plinth panel is attached to the two rear feet using the spring clips.
- The cabinet unit by means of a lift truck or similar. industrial truck, to the desired position. It is essential to avoid touching the adjustable feet and the rear part of the plinth panel with forks or similar. The rear plinth panel must not tilt when the cabinet unit is lowered.
- After installation, the cabinet unit is adjusted to the height of the plinth by means of the outer feet. The cabinet is aligned and lowered to plinth height approx. H=85 mm.
- Fit the two side parts of the plinth to the front panel. The matching connectors are enclosed. After mounting the three parts, slide the U-shaped plinth under the cabinet from the front. The 3-part u-shaped base can be easily attached to the two front feet from the front using the spring clips.

### NOTICE

If the safety cabinet is equipped with a base, it must be completely assembled, otherwise the approval expires and the GS certificate (conform to the GPSG - German Equipment and Product Safety Act) becomes invalid.

#### Note

In the XXL sizes, the side panels are mounted on the rear plinth part and are attached together to the rear feet. After setting up and adjusting the cabinet, the front panel is then pushed onto the leveling feet from the front.

# 5.6 Standard Cardboard Packaging



Dimensions and weights may vary. For detailed information about the corresponded dimensions and weights, see the relevant Technical Data in the Technical System-Documentation of the corresponded Continuous Gas Analysis System.

#### 5.6.1 Packaging examples



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Fig. 29: Packaging examples, cardboard on pallet

# 5.6.2 Storage and Handling

- Store in a closed warehouse.
- Use an appropriate forklift for handling.

# 6 Disposal

#### Note

Only qualified persons from the relevant specialist areas may carry out work on the system. Only specially trained personnel may switch off, shut down, transport and dispose of the system.

#### Note

Note the relevant currently valid local and legal environment regulations and directives for the disposal of any kind of packaging material.

#### Disposal of batteries, electrical and electronic equipment

According to international directives and regulations, batteries, accumulators and electrical or electronic devices must not be disposed of as household waste.

The owner is obliged to dispose of the equipment at the end of its service life at the appropriate public collection points.

This symbol on the product, packaging or in this document indicates that a product is subject to these regulations.



The following assemblies may contain substances that must be disposed of separately:

Electronics: capacitors, accumulators, batteries

**Displays:** Liquid in the LC-Displays

#### Sample gas lines:

Toxic substances of the sample gas can penetrate or adhere to soft materials of the gas path (e.g. hoses, sealing rings). Such effects must be taken into account during disposal.

#### Gas analyzer:



For detailed information to the disposal of analyzer modules, refer to the respective Operating Instructions.

#### Air condition units:

Professional disposal of refrigerants in the air condition units.

Australia Phone +61 (3) 9457 0600

1800 33 48 02 - tollfree E-Mail sales@sick.com.au

#### Austria

Phone +43 (0) 2236 62288-0 E-Mail office@sick.at

Belgium/Luxembourg Phone +32 (0) 2 466 55 66 E-Mail info@sick.be

Brazil Phone +55 11 3215-4900 E-Mail comercial@sick.com.br

Canada Phone +1 905.771.1444 E-Mail cs.canada@sick.com

Czech Republic Phone +420 2 57 91 18 50 E-Mail sick@sick.cz

Chile Phone +56 (2) 2274 7430 E-Mail chile@sick.com

China Phone +86 20 2882 3600 E-Mail info.china@sick.net.cn

Denmark Phone +45 45 82 64 00 E-Mail sick@sick.dk

Finland Phone +358-9-25 15 800 F-Mail sick@sick.fi

France Phone +33 1 64 62 35 00 E-Mail info@sick.fr

Germany Phone +49 (0) 2 11 53 01 E-Mail info@sick.de

Hong Kong Phone +852 2153 6300 E-Mail ghk@sick.com.hk

Hungary Phone +36 1 371 2680 E-Mail ertekesites@sick.hu

India Phone +91-22-6119 8900 E-Mail info@sick-india.com Israel Phone +972-4-6881000 E-Mail info@sick-sensors.com Italy

Phone +39 02 27 43 41 E-Mail info@sick.it Japan

Phone +81 3 5309 2112 E-Mail support@sick.jp

Malaysia Phone +603-8080 7425 E-Mail enquiry.my@sick.com

Mexico Phone +52 (472) 748 9451 E-Mail mario.garcia@sick.com

Netherlands Phone +31 (0) 30 229 25 44 E-Mail info@sick.nl

New Zealand Phone +64 9 415 0459 0800 222 278 - tollfree E-Mail sales@sick.co.nz

Norway Phone +47 67 81 50 00 E-Mail sick@sick.no

Poland Phone +48 22 539 41 00 E-Mail info@sick.pl

Romania Phone +40 356-17 11 20 E-Mail office@sick.ro

Russia Phone +7 495 283 09 90 E-Mail info@sick.ru

Singapore Phone +65 6744 3732 E-Mail sales.gsg@sick.com

Slovakia Phone +421 482 901 201 E-Mail mail@sick-sk.sk

Slovenia Phone +386 591 78849 E-Mail office@sick.si

South Africa Phone +27 (0)11 472 3733 E-Mail info@sickautomation.co.za South Korea Phone +82 2 786 6321 E-Mail info@sickkorea.net

Spain Phone +34 93 480 31 00 E-Mail info@sick.es

Sweden Phone +46 10 110 10 00 E-Mail info@sick.se

Switzerland Phone +41 41 619 29 39 E-Mail contact@sick.ch

Taiwan Phone +886-2-2375-6288 E-Mail sales@sick.com.tw

Thailand Phone +66 2 645 0009 E-Mail marcom.th@sick.com

Turkey Phone +90 (216) 528 50 00 E-Mail info@sick.com.tr

United Arab Emirates Phone +971 (0) 4 88 65 878 E-Mail info@sick.ae

United Kingdom Phone +44 (0)17278 31121 E-Mail info@sick.co.uk

USA Phone +1 800.325.7425 E-Mail info@sick.com

Vietnam Phone +65 6744 3732 E-Mail sales.gsg@sick.com

Further locations at www.sick.com

